LDWSF
4.8.5
10-3-14

RISK-BASED DETERMINATION FOR RESIDUAL PCB CONCENTRATIONS AND THIRD MODIFICATION WORK

PCBs are regulated under TSCA in addition to their regulation under other statutes. Under TSCA a Risk-Based Disposal Approval (RBDA) is an available option for cleanup of PCB remediation waste when the self-implementing cleanup and disposal standards of §761.61(a), or the performance-based disposal requirements of §761.61(b), are not appropriate or suitable. As part of the Third Modification to the JFOS Order, JFC and Boeing anticipate extensive coordination with EPA to determine the most appropriate compliant approach to remaining JFOS work.

REFERENCES

U.S. Environmental Protection Agency (EPA). 2010. Administrative Order on Consent for Removal Action, Jorgensen Forge Outfall Site, with Jorgensen Forge Corporation, Boeing Company, and EPA. CERCLA Docket No. 10-2011-0017. November 9.

_____. 2013. Second Modification for Administrative Order on Consent for Removal Action, Jorgensen Forge Outfall Site, with Jorgensen Forge Corporation, Boeing Company, and EPA. CERCLA Docket No. 10-2011-0017. June 25.

Sincerely,

Miles Dyer
Jorgensen Forge Corporation

william.d.ernst
@boeing.com
Digitally signed by william.d.ernst@boeing.com
DN: cn=william.d.ernst@boeing.com
Date: 2014.10.03 16:34:19 -07'00'

William D. Ernst
The Boeing Company

ATTACHMENTS:
Table 1 – Summary of SSP Residue Sample Analytical Results
Appendix A – Photographs
Appendix B – Laboratory Analytical Reports
Analytical Resources, Inc. Report No. YY33, dated Sept. 16, 2014
Analytical Resources, Inc. Report No. YZ49, dated Sept. 23, 2014
Analytical Resources, Inc. Report No. YY75, dated Sept. 23, 2014
Analytical Resources, Inc. Report No. ZA03, dated Sept. 26, 2014
Analytical Resources, Inc. Report No. ZA04, dated Sept. 26, 2014
Appendix C – Data Validation Report

JORGENSEN FORGE

ALUMINUM – TITANIUM – SPECIALTY STEELS

8531 EAST MARGINAL WAY SOUTH
SEATTLE, WASHINGTON 98108

PHONE (206) 762-1100 FAX (206) 763-0848

October 3, 2014

United States Environmental Protection Agency
Region 10
1200 Sixth Avenue, Suite 900
Seattle, WA 98101-3140
Attn: Ravi Sanga

SUBJECT: SUPPLEMENTAL REMOVAL ACTION COMPLETION REPORT
JORGENSEN FORGE OUTFALL SITE
SEATTLE, WASHINGTON
CERCLA DOCKET NO. 10-2011-0017, SECOND MODIFICATION

Dear Mr. Sanga:

This report has been prepared on behalf of Jorgensen Forge Corporation (JFC) and The Boeing Company (Boeing) (together as JFC/Boeing) pursuant to the *Second Modification to the Administrative Order on Consent for Removal Action* (Order) *at the Jorgensen Forge Outfall Site* (Second Modification; EPA 2013), Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Docket No. 10-2011-0017, signed by JFC, Boeing, and the U.S. Environmental Protection Agency (EPA) on June 25, 2013 (EPA 2010).

The purpose of this Supplemental Removal Action Completion Report is to document the final work completed under the Order's Second Modification and describe variances, if any, from plan. The work documented in this report includes the extraction, decontamination, and interim storage of the steel sheet piling (SSP) panels used to construct the cofferdam structure. Installation of the cofferdam structure itself was documented to EPA in the *Interim Removal Action Report - Cofferdam Installation* by SoundEarth Strategies, Inc. (SoundEarth), dated April 7, 2014. Specifically, this report describes in the general order of occurrence:

- The extraction of SSP panels following work by Earle M. Jorgensen (EMJ) in the SSP cofferdam;
- Measures undertaken to decontaminate the black residue that formed on the upper portion of the SSP inside the cofferdam;
- Sampling of the silty-sand material that adhered to the bottoms of the extracted SSP panels;
- The staging of extracted SSP panels inside the Jorgensen Forge Outfall Site (JFOS) project area; and,

- Current and proposed actions and temporary storage measures for the extracted SSP panels in consideration of the Third Modification to the Order.

SHEETPILE EXTRACTION

Following installation of the cofferdam structure in February 2014 (as described in the JFOS Interim Completion Report), in-water dredging of contaminated bank sediment and subsequent backfill placement in the cofferdam was performed by EMJ contractor Pacific Pile & Marine (PPM) in mid-August 2014. During this work an oily sheen observed on the water surface within the cofferdam led to the formation of a one- to two-foot high patchy band of black residue near the top of the inward-facing SSP cofferdam walls. Rapid backfilling by EMJ/PPM caused overtopping of the cofferdam walls and loss of some of the sheen to the Waterway. A sample of the sheen collected downstream from the cofferdam by EMJ and the results were reported to EPA in connection with Jorgensen Forge Early Action Area (JFEAA) project, under EPA Docket No. 10-2013-0032.

Following backfilling, SSP extraction was expedited by the same contractor PPM, working for JFC/Boeing, in order to quickly vacate the area and minimize interference with EMJ project work. Accordingly, the three in-water SSP walls of the cofferdam were extracted between August 28 and 30 by PPM using a barge-mounted crane and transferred to a dredge spoils barge made available by the EMJ/PPM project team. On-shore decontamination was not an option due to EMJ's concurrent removal action project.

The extraction process began with an SSP panel extracted from the middle of the west cofferdam wall, and included the use of a hydraulic vibratory hammer to first pull each SSP panel up approximately 40 feet to a point where the bottoms of the panels were seated approximately 10 to 15 feet below the mudline of the backfill. At this height, friction at the spline interlock between the SSP panels was sufficient to minimize the extent to which a partially extracted panel would sink back down through the backfill, while still allowing the vibratory hammer to be removed. The extraction tooling was changed out on the crane, and a device with lifting plugs was attached to the top of the SSP, with the panel settling several feet under its own weight during the equipment change. With lifting plugs in place, the panel was then lifted clear of the adjacent SSP panels in the cofferdam wall and placed on the adjacent barge, where decontamination of the black residue was performed. The equipment change is evident in the amount of silty sand material visibly adhered to the lower portions of the SPP panels. The three in-water cofferdam walls were removed, and the east, upland wall of the cofferdam was left in place in preparation for future implementation of an upland removal action under the Third Modification. Photographs of the SSP panel extraction process are included in Appendix A.

DECONTAMINATION AND SAMPLING OF BLACK RESIDUE

During in-water dredging of bank sediment, a black residue about two feet in height formed at the waterline on the inside faces of the cofferdam. To decontaminate the residue on the SSP prior to storage, each SSP panel bottom was positioned by crane on the barge bottom and then laid down on timbers. The black residue band was decontaminated by wiping the residue using a solvent-soaked rag. After decontamination, one sample was taken from a representative panel from each in-water SSP wall, for a total of three samples. SoundEarth collected the samples in accordance with SoundEarth's *Sampling and Analysis Procedures for Sheetpile Residue Memorandum* dated August 7, 2014, and e-mail correspondence between JFC and EPA dated August 21, 2014. (A sample of the residue prior to decontamination was not collected in the mistaken belief that only post-decontamination samples would be of interest.)

PCB concentrations in the wipe samples ranged from 48 to 209 micrograms per 100 square centimeters (µg/100 cm^2), indicating some contamination remained from the residue, which, following cleaning, had the appearance of a faded black stain on the extracted SSP. Results are summarized on Table 1. Laboratory reports are included in Appendix B. A data validation report is included in Appendix C.

Decontamination of the black residue on the upland SSP wall that remains in place was performed when access to the residue was available from the backfilled bank surface exposed at low tide. On September 10, SoundEarth collected a pre-decontamination wipe sample (SSP-E_20140910) of this residue. A second wipe sample (SSP-C-20140912) was taken by Soundearth on September 12 after PPM performed further decontamination of the residue. Given the prior results of the in-water SSP residue, greater emphasis was given on the decontamination process, which was made more difficult by the residue being on the vertical face of the SSP. The pre-decontamination wipe sample indicated PCBs were present in the residue at 1,160 µg/100 cm^2, and the post-decontamination sample results indicated that decontamination reduced PCB concentrations in the black residue area to 61 µg/100 cm^2. Immediately following collection of the post-decontamination sample, EMJ/PPM completed the placement of backfill material on the bank against the remaining SSP wall.

UPLANDS STAGING OF EXTRACTED SSP PANELS

Following SSP decontamination on the barge, PPM transferred the SSP panels to the JFOS boundaries behind (landward of) the upland SSP wall. PPM placed the extracted SSP panels on timbers in two stacks and double-wrapped the panels in 20 mil plastic sheeting with straw wattles as a temporary isolation protective measure. Black plastic is scheduled to be placed over the existing plastic sheeting during the week of 6-10 October and tied down in the same configuration. Placement of the SSP panels inside the JFOS boundary was coordinated with and approved by EPA following concerns raised by the EMJ project team that SSP stored in that area might interfere with the EMJ project. Placement in this area met multiple objectives by minimizing time otherwise necessary for SSP transport from PPM's barge to the closest available and suitable upland area, minimizing the potential for cross-contamination with the EMJ project area, and minimizing possible schedule impacts on the EMJ project given that PPM resources had to simultaneously support both the EMJ and JFC/Boeing projects.

SAMPLING OF ADHERED SILTY-SAND MATERIAL

A relatively small amount of silty sand that had variably adhered to the bottom two or three feet of the SSP during extraction was noted by EPA following stacking in the JFOS area. Upon closer inspection, this material was discontinuous (spotty) in coverage and forming a thin veneer with the visual appearance of concrete but that easily scraped off where present. EPA requested a plan be submitted to sample the adhered material. JFC/Boeing miscommunicated EPA's request to SoundEarth, however, such that SoundEarth instead sampled the material from a flat surface on September 11 and from the spline of an SSP panel on September 12. Photographs #7 through #15 in Appendix A feature the SSP panel surfaces where samples were collected. Each sample was collected by scraping the adhered material into a sample jar.

The total PCB concentration in the flat SSP surface sample was 6.4 mg/kg. The total PCB concentration in the SSP spline sample was 13.3 mg/kg. In attempting to construct a conceptual site model to explain these results, it may be significant to note that the total PCB concentration in the post-dredge, pre-backfill sample collected by EMJ from the bottom of the cofferdam was approximately 13 mg/kg (reported under separate cover in connection with the JFEAA Removal Action Completion Report), and the Aroclor mixture between the samples is also closely comparable. Although not definitive, it may be inferred that the expedited backfilling

by EMJ (described above) allowed residual post-dredge contamination to be dispersed in the lower portions of the cofferdam hole during backfilling, such that the SSP panels came in contact with the contaminated sand backfill during the extraction process allowing backfill material to adhere to the bottoms of the SSP panels and splines. Lift pins drag the SSP panels through the backfill material with considerable friction, in contrast to the hammer lift method, which with vibration breaks the surface tension and liquefies the material adjacent to the SSP surface.

It is suggested that if EPA desires further sampling of this material to ensure proper documentation, the temporary plastic shroud over the SSP would be peeled back to allow access for sampling, after which the final coverings would be installed for storage over the winter as described below.

TEMPORARY PROTECTIVE STORAGE MEASURES AND PROPOSED INTERIM STORAGE PLAN

The storage location of the SSP panels within the JFOS is on industrial property with suitable restricted access. The SSP panels are on timbers to limit contact with the ground surface, and the stacks are temporarily covered with double layer 20 mil clear plastic sheeting to prevent contact with rainfall while final protective measures are planned with EPA. The plastic sheeting is weighted with dunnage and sandbags, and the downgradient perimeter is circled with straw wattles to control the flow of stormwater off the covered SSP stacks.

JFC/Boeing intend to cover the material with an additional layer of black reinforced plastic to provide resistance to UV degradation, and maintain the area including the plastic and straw waddles throughout the winter until that area is remediated in 2015 by JFC/Boeing in anticipation of the pending Third Modification to the JFOS Order.

JFOS ORDER THIRD MODIFICATION IMPLEMENTATION

It is anticipated the last activity required under the JFOS removal action will be in support of the excavation and proper disposal of PCB-contaminated soil, including that presently under the stored SSP panels. JFC/Boeing commit to this action in 2015 following execution of the Third Order Modification. Reuse of the extracted SSP panels is likely for this activity pending the finalization of the shoring and excavation design, which is currently underway by JFC/Boeing.

JFC/Boeing suggest that should EPA determine the extracted SSP panels must be fully decontaminated before such reuse, the SSP would most appropriately be decontaminated as required as part of JFOS field mobilization in 2015. Decontamination at that time would be accomplished in accordance with 40 CFR Chapter 1, Subpart R, Part 761, Subpart D, Section 761.79, Decontamination Standards and Procedures for PCBs, followed by necessary sampling and disposal consistent with TSCA requirements. It is suggested the means proposed above by which the extracted SSP panels would be stored and prepared for reuse represent a suitably conservative approach for managing the human and environmental safety, risks and issues involved.

RISK-BASED DETERMINATION FOR RESIDUAL PCB CONCENTRATIONS AND THIRD MODIFICATION WORK

PCBs are regulated under TSCA in addition to their regulation under other statutes. Under TSCA a Risk-Based Disposal Approval (RBDA) is an available option for cleanup of PCB remediation waste when the self-implementing cleanup and disposal standards of §761.61(a), or the performance-based disposal requirements of §761.61(b), are not appropriate or suitable. As part of the Third Modification to the JFOS Order, JFC and Boeing anticipate extensive coordination with EPA to determine the most appropriate compliant approach to remaining JFOS work.

REFERENCES

U.S. Environmental Protection Agency (EPA). 2010. Administrative Order on Consent for Removal Action, Jorgensen Forge Outfall Site, with Jorgensen Forge Corporation, Boeing Company, and EPA. CERCLA Docket No. 10-2011-0017. November 9.

_____. 2013. Second Modification for Administrative Order on Consent for Removal Action, Jorgensen Forge Outfall Site, with Jorgensen Forge Corporation, Boeing Company, and EPA. CERCLA Docket No. 10-2011-0017. June 25.

Sincerely,

william.d.ernst@boeing.com

Digitally signed by william.d.ernst@boeing.com
DN: cn=william.d.ernst@boeing.com
Date: 2014.10.03 16:34:19 -07'00'

Miles Dyer
Jorgensen Forge Corporation

William D. Ernst
The Boeing Company

ATTACHMENTS:

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Analytical Resources, Inc. Report No. ZA04, dated Sept. 26, 2014
Appendix C – Data Validation Report

TABLE

SoundEarth Strategies

TABLE 1
SUMMARY OF SSP RESIDUE SAMPLE ANALYTICAL RESULTS
JORGENSEN FORGE OUTFALL SITE
SECOND MODIFICATION, PHASE 4A
SEATTLE, WASHINGTON
CERCLE DOCKET NO. 10-2011-0017

RESIDUE WIPE SAMPLES				
SAMPLE ID	**DATE**	**LOCATION**	**SAMPLES COLLECTED BEFORE/AFTER DECONTAMINATION**	**TOTAL PCBs[(1)]** (µg/100 cm^2)
SSP-W-20140829	8/29/2014	WEST WALL OF COFFERDAM	AFTER	87
SSP-S-20140829	8/29/2014	SOUTH WALL OF COFFERDAM	AFTER	209
SSP-N-20140829	8/29/2014	NORTH WALL OF COFFERDAM	AFTER	48
SSP-E-20140910	9/10/2014	EAST WALL OF COFFERDAM	BEFORE	1,160
SSP-C-20140912	9/12/2014	EAST WALL OF COFFERDAM	AFTER	61

SOLID SAMPLES				
SAMPLE ID	**DATE**	**LOCATION**	**SAMPLES COLLECTED BEFORE/AFTER DECONTAMINATION**	**TOTAL PCBs[(1)]** (µg/kg dry wt)
SSP-SOLIDS-20140911	9/11/2014	FACE, BOTTOM OF EXTRACTED SSP PANEL	AFTER	6,400
SSP-SOLIDS-20140912	9/12/2014	SPLINE, BOTTOM OF EXTRACTED SSP PANEL	AFTER	13,300

NOTES:
Laboratory analysis by Analytical Resources, Inc. of Tukwila, Washington
[(1)]PCBs by EPA Method 8082A, Nine Aroclors (1016, 1242, 1248, 1254, 2160, 1221, 1232, 1262, and 1268)

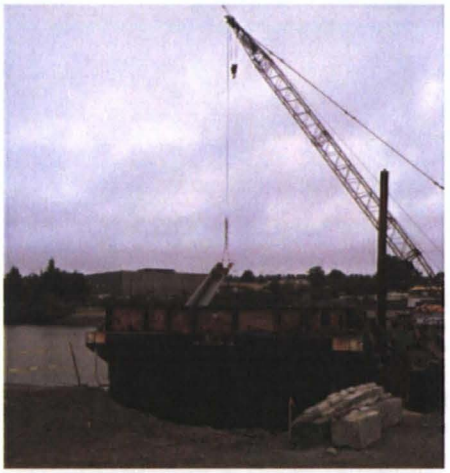
ABBREVIATIONS:
PCBs = Polychlorinated biphenyls

APPENDIX A

PHOTOGRAPHS

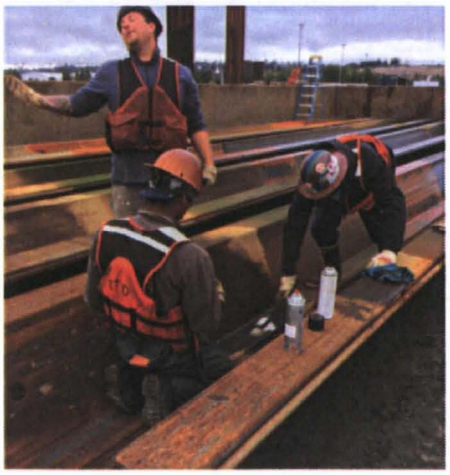
Photograph 1. Using vibrating hammer to extract SSP panels from the south cofferdam wall. Viewing southwest.

Photograph 2. Extracting SSP panels from the southwest, in-water side of the former cofferdam. Viewing north.



Photograph 3. SSP being laid onto the decontamination barge by lifting plugs, without the vibrating hammer.

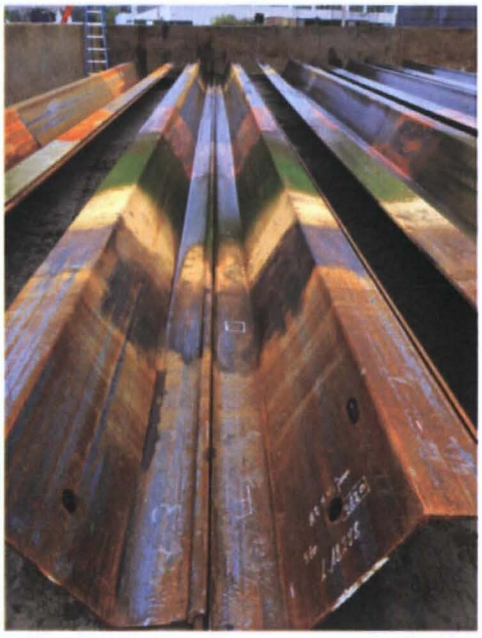
Photograph 4. Staging extracted SSP panels on the decontamination barge for cleaning.



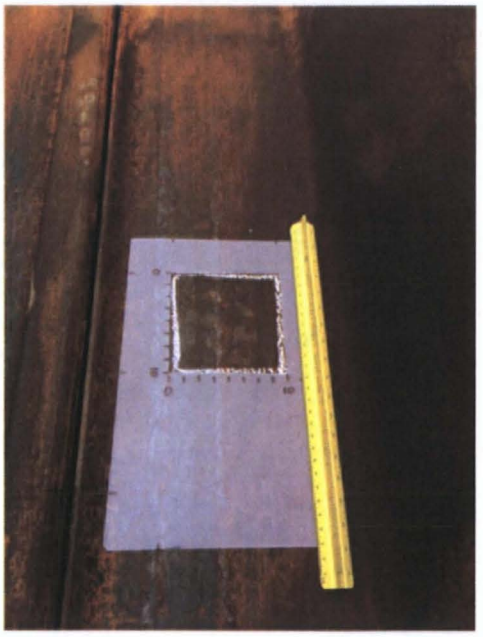
Photograph 5. PP&M crew on the decontamination barge, scrubbing the black residue zone on an SSP panel.

Photograph 6. SSP panel on decontamination barge. Note face and spline at top of SSP panel are free of bank material.

SoundEarth Strategies	EPA Docket No.: 10-2011-0017 Date: September 30, 2014 Drawn By: DHG Chk By: DHG File ID: 0995-001-08_SSP Removal_Photos	**SSP PANEL REMOVAL PHOTOGRAPHS** Jorgensen Forge Outfall Site 8531 E. Marginal Way S. Seattle, Washington

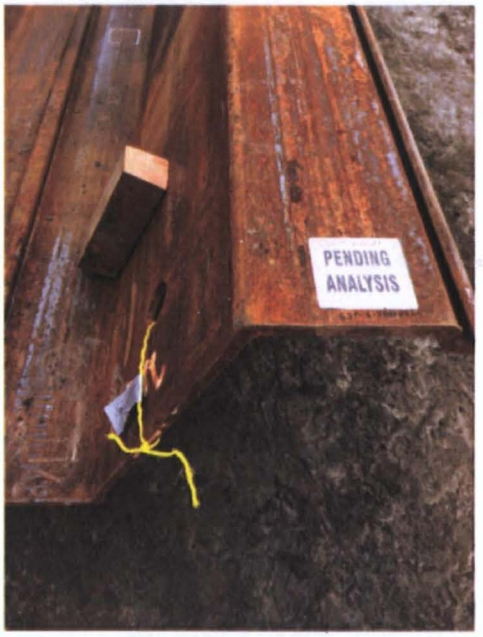


Photograph 7. Chalk-mark indicates location of residue wipe sample and black residue, relative to top edge of panel.



Photograph 8. Marking the residue wipe sample area. Note spline is free of bank material.

Photograph 9. Close-up view of SSP wipe sample (SSP-N-20140829).



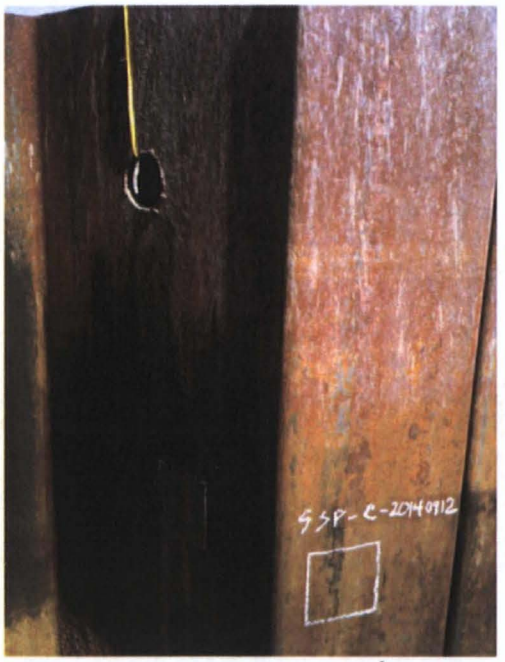
Photograph 10. SSP wipe sample location in background along with redundant labeling. Note spline is free of bank material.

SoundEarth Strategies

EPA Docket No.:	10-2011-0017
Date:	September 30, 2014
Drawn By:	DHG
Chk By:	DHG
File ID:	0995-001-08_SSP Removal_Photos

SSP PANEL REMOVAL PHOTOGRAPHS
Jorgensen Forge Outfall Site
8531 E. Marginal Way S.
Seattle, Washington

Photograph 11. Chalk-mark outlines 100 cm^2 area of residue sample SSP-E-20140910, on the east SSP wall (PRE-Decon).

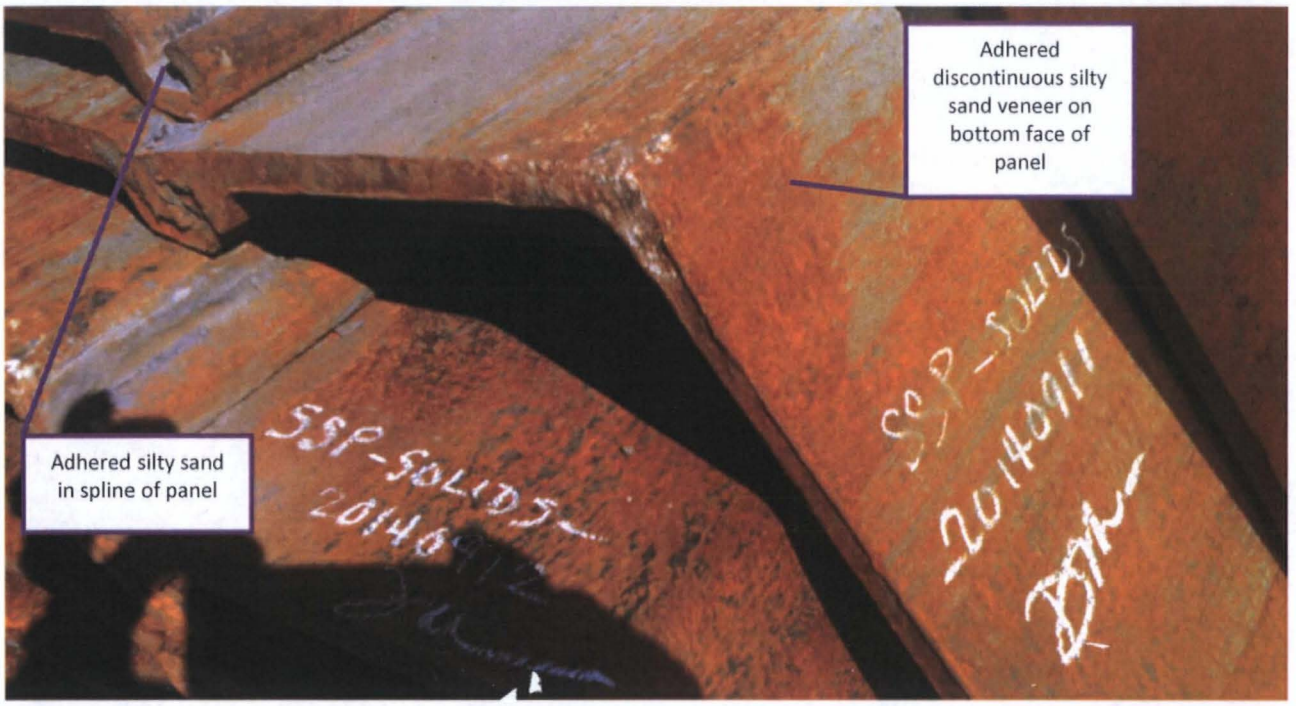


Photograph 12. Chalk-mark outlines 100 cm^2 area of residue sample SSP-C-20140912, on the east SSP wall (POST-Decon). Outline of PRE-decon sample location visible in shadow at left.

Photograph 13. Bottoms of decontaminated SSP panels staged on dunnage and under plastic at JFOS. Sample areas marked with chalk.

Photograph 14. Close-up of Photograph 9 showing silty sand material at sample locations SSP-SOLIDS-2014-0911 and spline sample area SSP-SOLIDS-20140912.

SoundEarth Strategies	EPA Docket No.: 10-2011-0017 Date: September 30, 2014 Drawn By: DHG Chk By: DHG File ID: 0995-001-08_SSP Removal_Photos	**SSP PANEL REMOVAL PHOTOGRAPHS** Jorgensen Forge Outfall Site 8531 E. Marginal Way S. Seattle, Washington



Photograph 15. Close-up photograph of sample locations SSP-SOLIDS-20140911 (veneer/crust) and SSP-SOLIDS-20140912 (spline). Silty sand material forms discontinuous veneer at bottoms of extracted SSP panels. Material adhered in spline was gouged out to collect sample for analysis.

Photograph 16. Extracted SSP panels staged at JFOS under weighted plastic sheeting. Viewing northwest.

SoundEarth Strategies	EPA Docket No.: 10-2011-0017 Date: September 30, 2014 Drawn By: DHG Chk By: DHG File ID: 0995-001-08_SSP Removal_Photos	**SSP PANEL REMOVAL PHOTOGRAPHS** Jorgensen Forge Outfall Site 8531 E. Marginal Way S. Seattle, Washington

APPENDIX B

ANALYTICAL REPORTS

Analytical Resources, Inc. Report No. YY33, dated Sept. 16, 2014

Analytical Resources, Incorporated
Analytical Chemists and Consultants

9 September 2014

Miles Dyer
Jorgensen Forge Corporation
8531 East Marginal Way South
Seattle, WA 98108

RE: JFOS Sheet Pile, 0995
ARI Job No.: YY33

Dear Miles:

Please find enclosed the original Chain-of-Custody (COC) record, sample receipt documentation, and the final data for the samples from the project referenced above. Analytical Resources, Inc. (ARI) accepted three wipe samples on August 29, 2014. For further details regarding sample receipt please refer to the enclosed Cooler Receipt Form.

The samples were analyzed for PCBs as requested.

There were no anomalies associated with the analyses of these samples.

An electronic copy of this report and all supporting raw data will remain on file with ARI. Should you have any questions regarding these results, please feel free to contact me at your convenience.

Respectfully,

ANALYTICAL RESOURCES, INC.

Mark D. Harris
Project Manager
206/695-6210
markh@arilabs.com
www.arilabs.com

cc: Dee Gardner, Sound Earth, Inc.
eFile YY33

Enclosures

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 1733	Turn-around Requested: ~~RUSH~~ STD	Page:	of
ARI Client Company: JORGENSEN FORGE	Phone: 206.762.1100	Date:	Ice Present? Y
Client Contact: MILES DYER		No. of Coolers: 1	Cooler Temps: 17.3
Client Project Name: JFOS SHEET PILE			
Client Project #: 0995	Samplers: LMK		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: PCB Aroclor EPA 8082	Notes/Comments
SSP-W-20140829	8-27-14	0740	WIPE	1	X	
SSP.S.20140829	8-27-14	0825	WIPE	1	X	
SSP-N-20140829	8-27-14	0930	WIPE	1	X	

Comments/Special Instructions	Relinquished by (Signature)	Received by (Signature)	Relinquished by (Signature)	Received by (Signature)
• CC DEE GARDNER AT SOUNDEARTH dgardner@soundearthinc.com • LEVEL 2B	Printed Name: L.Z Kirb	Printed Name: A Volgardsen	Printed Name	Printed Name
	Company: Sound Earth	Company: ARI	Company	Company
	Date & Time: 8-27-14 12:50	Date & Time: 8/29/14 1250	Date & Time:	Date & Time

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Jorgensen Forge Project Name: JFCS Sheet Pile

COC No(s). _____ (NA) Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: Y133 Tracking No. _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? YES (NO)

Were custody papers included with the cooler? YES NO

Were custody papers properly filled out (ink, signed, etc.) YES NO

Temperature of Cooler(s) (°C) (recommended 2.0-6 0 °C for chemistry)
Time: 950 17.3

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 90E7715

Cooler Accepted by: AV Date: 8/29/14 Time: 950

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES (NO)

What kind of packing material was used? Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____

Was sufficient ice used (if appropriate)? NA (YES) NO

Were all bottles sealed in individual plastic bags? YES (NO)

Did all bottles arrive in good condition (unbroken)? (YES) NO

Were all bottle labels complete and legible? (YES) NO

Did the number of containers listed on COC match with the number of containers received? (YES) NO

Did all bottle labels and tags agree with custody papers? (YES) NO

Were all bottles used correct for the requested analyses? (YES) NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)... (NA) YES NO

Were all VOC vials free of air bubbles? (NA) YES NO

Was sufficient amount of sample sent in each bottle? (YES) NO

Date VOC Trip Blank was made at ARI (NA) _____

Was Sample Split by ARI: (NA) YES Date/Time: _____ Equipment _____ Split by: _____

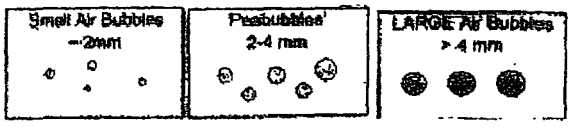
Samples Logged by: 15 Date: 8-29-14 Time: 1351

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: _____ Date: _____



Small → "sm" (< 2 mm)
Peabubbles → "pb" (2 to < 4 mm)
Large → "lg" (4 to < 6 mm)
Headspace → "hs" (> 6 mm)

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: YY33
Client: Jorgensen Forge
Project Event: 0995
Project Name: JFOS Sheet Pile

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	SSP-W-20140829	YY33A	14-17799	Wipe	08/29/14 07:40	08/29/14 12:50
2.	SSP-S-20140829	YY33B	14-17800	Wipe	08/29/14 08:25	08/29/14 12:50
3.	SSP-N-20140829	YY33C	14-17801	Wipe	08/29/14 09:30	08/29/14 12:50

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 12/31/13

Inorganic Data

U	Indicates that the target analyte was not detected at the reported concentration
*	Duplicate RPD is not within established control limits
B	Reported value is less than the CRDL but ≥ the Reporting Limit
N	Matrix Spike recovery not within established control limits
NA	Not Applicable, analyte not spiked
H	The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
L	Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U	Indicates that the target analyte was not detected at the reported concentration
*	Flagged value is not within established control limits
B	Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.
J	Estimated concentration when the value is less than ARI's established reporting limits
D	The spiked compound was not detected due to sample extract dilution
E	Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

Q	Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).
S	Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte
NA	The flagged analyte was not analyzed for
NR	Spiked compound recovery is not reported due to chromatographic interference
NS	The flagged analyte was not spiked into the sample
M	Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"
Y	The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.
EMPC	Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**
C	The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column
P	The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference
X	Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**
Z	Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**

Geotechnical Data

A	The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.
F	Samples were frozen prior to particle size determination
SM	Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations
SS	Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis
W	Weight of sample in some pipette aliquots was below the level required for accurate weighting

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3580A
Page 1 of 1

Sample ID: MB-090214
METHOD BLANK

Lab Sample ID: MB-090214
LIMS ID: 14-17799
Matrix: Wipe
Data Release Authorized: MW
Reported: 09/09/14

QC Report No: YY33-Jorgensen Forge
Project: JFOS Sheet Pile 0995
Date Sampled: NA
Date Received: NA

Date Extracted: 09/02/14
Date Analyzed: 09/06/14 18:55
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: No
Acid Cleanup: Yes

Sample Amount: 1.00 Wipe
Final Extract Volume: 10 mL
Dilution Factor: 1.00
Silica Gel: Yes

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	1.0	< 1.0 U
53469-21-9	Aroclor 1242	1.0	< 1.0 U
12672-29-6	Aroclor 1248	1.0	< 1.0 U
11097-69-1	Aroclor 1254	1.0	< 1.0 U
11096-82-5	Aroclor 1260	1.0	< 1.0 U
11104-28-2	Aroclor 1221	1.0	< 1.0 U
11141-16-5	Aroclor 1232	1.0	< 1.0 U
37324-23-5	Aroclor 1262	1.0	< 1.0 U
11100-14-4	Aroclor 1268	1.0	< 1.0 U

Reported in Total µg

PCB Surrogate Recovery

Decachlorobiphenyl	89.5%
Tetrachlorometaxylene	81.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3580A
Page 1 of 1

Sample ID: SSP-W-20140829
SAMPLE

Lab Sample ID: YY33A
LIMS ID: 14-17799
Matrix: Wipe
Data Release Authorized: MW
Reported: 09/09/14

QC Report No: YY33-Jorgensen Forge
Project: JFOS Sheet Pile
0995
Date Sampled: 08/29/14
Date Received: 08/29/14

Date Extracted: 09/02/14
Date Analyzed: 09/06/14 20:00
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: No
Acid Cleanup: Yes

Sample Amount: 1.00 Wipe
Final Extract Volume: 10 mL
Dilution Factor: 1.00
Silica Gel: Yes

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	1.0	< 1.0 U
53469-21-9	Aroclor 1242	1.0	< 1.0 U
12672-29-6	Aroclor 1248	20	< 20 YE
11097-69-1	**Aroclor 1254**	**1.0**	**50 E**
11096-82-5	**Aroclor 1260**	**1.0**	**18 E**
11104-28-2	Aroclor 1221	1.0	< 1.0 U
11141-16-5	Aroclor 1232	1.0	< 1.0 U
37324-23-5	Aroclor 1262	1.0	< 1.0 U
11100-14-4	Aroclor 1268	1.0	< 1.0 U

Reported in Total µg

PCB Surrogate Recovery

Decachlorobiphenyl	107%
Tetrachlorometaxylene	87.8%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3580A
Page 1 of 1

ANALYTICAL RESOURCES INCORPORATED

Sample ID: SSP-W-20140829
DILUTION

Lab Sample ID: YY33A
LIMS ID: 14-17799
Matrix: Wipe
Data Release Authorized:
Reported: 09/09/14

QC Report No: YY33-Jorgensen Forge
Project: JFOS Sheet Pile
0995
Date Sampled: 08/29/14
Date Received: 08/29/14

Date Extracted: 09/02/14
Date Analyzed: 09/08/14 13:39
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: No
Acid Cleanup: Yes

Sample Amount: 1.00 Wipe
Final Extract Volume: 10 mL
Dilution Factor: 20.0
Silica Gel: Yes

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	4.0	< 4.0 U
53469-21-9	Aroclor 1242	4.0	< 4.0 U
12672-29-6	Aroclor 1248	30	< 30 Y
11097-69-1	**Aroclor 1254**	**4.0**	**68**
11096-82-5	**Aroclor 1260**	**4.0**	**19**
11104-28-2	Aroclor 1221	4.0	< 4.0 U
11141-16-5	Aroclor 1232	4.0	< 4.0 U
37324-23-5	Aroclor 1262	4.0	< 4.0 U
11100-14-4	Aroclor 1268	4.0	< 4.0 U

Reported in Total µg

PCB Surrogate Recovery

Decachlorobiphenyl	109%
Tetrachlorometaxylene	108%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3580A
Page 1 of 1

Sample ID: SSP-S-20140829
SAMPLE

Lab Sample ID: YY33B
LIMS ID: 14-17800
Matrix: Wipe
Data Release Authorized: MW
Reported: 09/09/14

QC Report No: YY33-Jorgensen Forge
Project: JFOS Sheet Pile 0995
Date Sampled: 08/29/14
Date Received: 08/29/14

Date Extracted: 09/02/14
Date Analyzed: 09/06/14 20:22
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: No
Acid Cleanup: Yes

Sample Amount: 1.00 Wipe
Final Extract Volume: 10 mL
Dilution Factor: 1.00
Silica Gel: Yes

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	1.0	< 1.0 U
53469-21-9	Aroclor 1242	1.0	< 1.0 U
12672-29-6	Aroclor 1248	30	< 30 YE
11097-69-1	**Aroclor 1254**	**1.0**	**150 E**
11096-82-5	**Aroclor 1260**	**1.0**	**48 E**
11104-28-2	Aroclor 1221	1.0	< 1.0 U
11141-16-5	Aroclor 1232	1.0	< 1.0 U
37324-23-5	Aroclor 1262	1.0	< 1.0 U
11100-14-4	Aroclor 1268	1.0	< 1.0 U

Reported in Total µg

PCB Surrogate Recovery

Decachlorobiphenyl	87.0%
Tetrachlorometaxylene	90.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3580A
Page 1 of 1

Sample ID: SSP-S-20140829
DILUTION

Lab Sample ID: YY33B
LIMS ID: 14-17800
Matrix: Wipe
Data Release Authorized: MW
Reported: 09/09/14

QC Report No: YY33-Jorgensen Forge
Project: JFOS Sheet Pile
0995
Date Sampled: 08/29/14
Date Received: 08/29/14

Date Extracted: 09/02/14
Date Analyzed: 09/08/14 14:01
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: No
Acid Cleanup: Yes

Sample Amount: 1.00 Wipe
Final Extract Volume: 10 mL
Dilution Factor: 40.0
Silica Gel: Yes

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	8.0	< 8.0 U
53469-21-9	Aroclor 1242	8.0	< 8.0 U
12672-29-6	Aroclor 1248	8.0	< 8.0 U
11097-69-1	**Aroclor 1254**	**8.0**	**160**
11096-82-5	**Aroclor 1260**	**8.0**	**49**
11104-28-2	Aroclor 1221	8.0	< 8.0 U
11141-16-5	Aroclor 1232	8.0	< 8.0 U
37324-23-5	Aroclor 1262	8.0	< 8.0 U
11100-14-4	Aroclor 1268	8.0	< 8.0 U

Reported in Total µg

PCB Surrogate Recovery

Decachlorobiphenyl	D
Tetrachlorometaxylene	D

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3580A
Page 1 of 1

Sample ID: SSP-N-20140829
SAMPLE

Lab Sample ID: YY33C
LIMS ID: 14-17801
Matrix: Wipe
Data Release Authorized: MW
Reported: 09/09/14

QC Report No: YY33-Jorgensen Forge
Project: JFOS Sheet Pile
0995
Date Sampled: 08/29/14
Date Received: 08/29/14

Date Extracted: 09/02/14
Date Analyzed: 09/06/14 20:44
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: No
Acid Cleanup: Yes

Sample Amount: 1.00 Wipe
Final Extract Volume: 10 mL
Dilution Factor: 1.00
Silica Gel: Yes

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	1.0	< 1.0 U
53469-21-9	Aroclor 1242	1.0	< 1.0 U
12672-29-6	Aroclor 1248	8.0	< 8.0 Y
11097-69-1	**Aroclor 1254**	**1.0**	**33 E**
11096-82-5	**Aroclor 1260**	**1.0**	**9.2**
11104-28-2	Aroclor 1221	1.0	< 1.0 U
11141-16-5	Aroclor 1232	1.0	< 1.0 U
37324-23-5	Aroclor 1262	1.0	< 1.0 U
11100-14-4	Aroclor 1268	1.0	< 1.0 U

Reported in Total µg

PCB Surrogate Recovery

Decachlorobiphenyl	101%
Tetrachlorometaxylene	84.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3580A
Page 1 of 1

Sample ID: SSP-N-20140829
DILUTION

Lab Sample ID: YY33C
LIMS ID: 14-17801
Matrix: Wipe
Data Release Authorized: MW
Reported: 09/09/14

QC Report No: YY33-Jorgensen Forge
Project: JFOS Sheet Pile
0995
Date Sampled: 08/29/14
Date Received: 08/29/14

Date Extracted: 09/02/14
Date Analyzed: 09/08/14 14:23
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: No
Acid Cleanup: Yes

Sample Amount: 1.00 Wipe
Final Extract Volume: 10 mL
Dilution Factor: 10.0
Silica Gel: Yes

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	2.0	< 2.0 U
53469-21-9	Aroclor 1242	2.0	< 2.0 U
12672-29-6	Aroclor 1248	10	< 10 Y
11097-69-1	**Aroclor 1254**	**2.0**	**37**
11096-82-5	**Aroclor 1260**	**2.0**	**11**
11104-28-2	Aroclor 1221	2.0	< 2.0 U
11141-16-5	Aroclor 1232	2.0	< 2.0 U
37324-23-5	Aroclor 1262	2.0	< 2.0 U
11100-14-4	Aroclor 1268	2.0	< 2.0 U

Reported in Total µg

PCB Surrogate Recovery

Decachlorobiphenyl	131%
Tetrachlorometaxylene	88.5%

FORM I

Analytical Resources, Incorporated
Analytical Chemists and Consultants

16 September 2014

Miles Dyer
Jorgensen Forge Corporation
8531 East Marginal Way South
Seattle, WA 98108

RE: JFOS Sheet Pile, 0995
ARI Job No.: YY33

Dear Miles:

Please find enclosed the additional deliverables for the samples from the project referenced above.

It was discovered that the results for the LCS and the corresponding surrogate recovery form were missing from the original report.

An electronic copy of these forms will remain on file with ARI. Should you have any questions regarding this submission, please feel free to contact me at your convenience.

Respectfully,

ANALYTICAL RESOURCES, INC.

Mark D. Harris
Project Manager
206/695-6210
markh@arilabs.com
www.arilabs.com

cc: Dee Gardner, Sound Earth, Inc.
eFile YY33

Enclosures

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Page 1 of 1

Sample ID: LCS-090214
LAB CONTROL

Lab Sample ID: LCS-090214
LIMS ID: 14-17799
Matrix: Wipe
Data Release Authorized: MW
Reported: 09/09/14

QC Report No: YY33-Jorgensen Forge
Project: JFOS Sheet Pile
0995
Date Sampled: 08/29/14
Date Received: 08/29/14

Date Extracted: 09/02/14
Date Analyzed: 09/06/14 19:16
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: No
Acid Cleanup: Yes

Sample Amount: 1.00 Wipe
Final Extract Volume: 10 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: NA

Analyte	Lab Control	Spike Added	Recovery
Aroclor 1016	4.30	5.00	86.0%
Aroclor 1260	4.71	5.00	94.2%

PCB Surrogate Recovery

Decachlorobiphenyl	93.8%
Tetrachlorometaxylene	82.5%

Reported in Total µg

FORM III

ANALYTICAL RESOURCES INCORPORATED

SW8082/PCB SURROGATE RECOVERY SUMMARY

Matrix: Wipe

QC Report No: YY33-Jorgensen Forge
Project: JFOS Sheet Pile
0995

Client ID	DCBP	TCMX	TOT OUT
MB-090214	89.5%	81.2%	0
LCS-090214	93.8%	82.5%	0
SSP-W-20140829	107%	87.8%	0
SSP-W-20140829 DL	109%	108%	0
SSP-S-20140829	87.0%	90.5%	0
SSP-S-20140829 DL	D	D	0
SSP-N-20140829	101%	84.5%	0
SSP-N-20140829 DL	131%	88.5%	0

	LCS/MB LIMITS	QC LIMITS
(DCBP) = Decachlorobiphenyl	(30-160)	(30-160)
(TCMX) = Tetrachlorometaxylene	(30-160)	(30-160)

Prep Method: SW3580A
Log Number Range: 14-17799 to 14-17801

FORM-II SW8082

Analytical Resources, Inc. Report No. YZ49, dated Sept. 23, 2014

Analytical Resources, Incorporated
Analytical Chemists and Consultants

23 September 2014

Miles Dyer
Jorgensen Forge Corporation
8531 East Marginal Way South
Seattle, WA 98108

RE: JFOS Sheet Pile, 0995
ARI Job No.: YZ49

Dear Miles:

Please find enclosed the original Chain-of-Custody (COC) record, sample receipt documentation, and the final data for the sample from the project referenced above. Analytical Resources, Inc. (ARI) accepted one wipe sample on September 10, 2014. For further details regarding sample receipt please refer to the enclosed Cooler Receipt Form.

The sample was analyzed for PCBs as requested.

The percent difference (%D) for Aroclor 1254 was high for one column for the CCAL that bracketed the dilution of this sample. This column was used for confirmation only. The data from the primary column was used for quantitation.

There were no further anomalies associated with the analyses of this sample.

An electronic copy of this report and all supporting raw data will remain on file with ARI. Should you have any questions regarding these results, please feel free to contact me at your convenience.

Respectfully,

ANALYTICAL RESOURCES, INC.

Mark D. Harris
Project Manager
206/695-6210
markh@arilabs.com
www.arilabs.com

cc: Dee Gardner, Sound Earth, Inc.
Mingta Lin, Pyron Envurinmental
eFile YZ49

Enclosures

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 1249	Turn-around Requested: Standard	Page:	of
ARI Client Company: Jorgensen Forge	Phone: 206-762-1100	Date:	Ice Present? Y
Client Contact: Miles Dyer		No. of Coolers: 1	Cooler Temps: 15.7
Client Project Name: JFOs Sheet Pile			
Client Project #: 0995	Samplers: CCC		

Sample ID	Date	Time	Matrix	No. Containers	PCBs EPA 8082	Analysis Requested							Notes/Comments
SSP-E-20140910	9-10-14	1435	wipe	1	X								

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by (Signature)	Received by: (Signature)
cc Dee Gardner @ SoundEarth dgardner@soundearthinc.com	Printed Name: Charles Cacek	Printed Name: A. Vobgardsen	Printed Name	Printed Name
	Company: SoundEarth	Company: ARI	Company	Company
	Date & Time: 9-10-14 1509	Date & Time: 9/10/14 1509	Date & Time	Date & Time

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Jorgensen Forge
Project Name: JFOS Sheet Pile
COC No(s): _____ NA
Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____
Assigned ARI Job No: Y249
Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? YES NO
Were custody papers included with the cooler? YES NO
Were custody papers properly filled out (ink, signed, etc.) YES NO
Temperature of Cooler(s) (°C) (recommended 2 0-6.0 °C for chemistry) 15.7
Time: 1509
If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 90277953
Cooler Accepted by: AV Date: 9/10/14 Time: 1509

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES NO
What kind of packing material was used? Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____
Was sufficient ice used (if appropriate)? NA YES NO
Were all bottles sealed in individual plastic bags? YES NO
Did all bottles arrive in good condition (unbroken)? YES NO
Were all bottle labels complete and legible? YES NO
Did the number of containers listed on COC match with the number of containers received? YES NO
Did all bottle labels and tags agree with custody papers? YES NO
Were all bottles used correct for the requested analyses? YES NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) NA YES NO
Were all VOC vials free of air bubbles? NA YES NO
Was sufficient amount of sample sent in each bottle? YES NO
Date VOC Trip Blank was made at ARI: NA _____
Was Sample Split by ARI: NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: TS Date: 9-11-14 Time: 0429

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:

Small Air Bubbles ~2mm	Peabubbles 2-4 mm	LARGE Air Bubbles > 4 mm

Small → "sm" (< 2 mm)
Peabubbles → "pb" (2 to < 4 mm)
Large → "lg" (4 to < 6 mm)
Headspace → "hs" (> 6 mm)

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: YZ49
Client: Jorgensen Forge
Project Event: 0995
Project Name: JFOS Sheet Pile

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	SSP-E-20140910	YZ49A	14-18330	Wipe	09/10/14 14:35	09/10/14 15:09

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 12/31/13

Inorganic Data

U	Indicates that the target analyte was not detected at the reported concentration
*	Duplicate RPD is not within established control limits
B	Reported value is less than the CRDL but ≥ the Reporting Limit
N	Matrix Spike recovery not within established control limits
NA	Not Applicable, analyte not spiked
H	The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
L	Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U	Indicates that the target analyte was not detected at the reported concentration
*	Flagged value is not within established control limits
B	Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.
J	Estimated concentration when the value is less than ARI's established reporting limits
D	The spiked compound was not detected due to sample extract dilution
E	Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

Q	Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).
S	Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte
NA	The flagged analyte was not analyzed for
NR	Spiked compound recovery is not reported due to chromatographic interference
NS	The flagged analyte was not spiked into the sample
M	Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"
Y	The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.
EMPC	Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**
C	The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column
P	The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference
X	Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**
Z	Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**

Geotechnical Data

A	The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.
F	Samples were frozen prior to particle size determination
SM	Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations
SS	Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis
W	Weight of sample in some pipette aliquots was below the level required for accurate weighting

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A **Sample ID: MB-091114**
Extraction Method: SW3580A **METHOD BLANK**
Page 1 of 1

Lab Sample ID: MB-091114
LIMS ID: 14-18330
Matrix: Wipe
Data Release Authorized:
Reported: 09/23/14

QC Report No: YZ49-Jorgensen Forge
Project: JFOS Sheet Pile
0995
Date Sampled: NA
Date Received: NA

Date Extracted: 09/11/14
Date Analyzed: 09/20/14 02:57
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes

Sample Amount: 1.00 Wipe
Final Extract Volume: 10 mL
Dilution Factor: 1.00
Silica Gel: No

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	1.0	< 1.0 U
53469-21-9	Aroclor 1242	1.0	< 1.0 U
12672-29-6	Aroclor 1248	1.0	< 1.0 U
11097-69-1	Aroclor 1254	1.0	< 1.0 U
11096-82-5	Aroclor 1260	1.0	< 1.0 U
11104-28-2	Aroclor 1221	1.0	< 1.0 U
11141-16-5	Aroclor 1232	1.0	< 1.0 U
37324-23-5	Aroclor 1262	1.0	< 1.0 U
11100-14-4	Aroclor 1268	1.0	< 1.0 U

Reported in Total µg

PCB Surrogate Recovery

Decachlorobiphenyl	94.2%
Tetrachlorometaxylene	75.5%

FORM I

YZ49 [illegible]

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3580A
Page 1 of 1

Sample ID: SSP-E-20140910
SAMPLE

Lab Sample ID: YZ49A
LIMS ID: 14-18330
Matrix: Wipe
Data Release Authorized:
Reported: 09/23/14

QC Report No: YZ49-Jorgensen Forge
Project: JFOS Sheet Pile
0995
Date Sampled: 09/10/14
Date Received: 09/10/14

Date Extracted: 09/11/14
Date Analyzed: 09/20/14 03:41
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: No
Acid Cleanup: Yes

Sample Amount: 1.00 Wipe
Final Extract Volume: 40 mL
Dilution Factor: 1.00
Silica Gel: Yes

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	4.0	< 4.0 U
53469-21-9	Aroclor 1242	4.0	< 4.0 U
12672-29-6	Aroclor 1248	80	< 80 YE
11097-69-1	**Aroclor 1254**	**4.0**	**730 E**
11096-82-5	**Aroclor 1260**	**4.0**	**190 EP**
11104-28-2	Aroclor 1221	4.0	< 4.0 U
11141-16-5	Aroclor 1232	4.0	< 4.0 U
37324-23-5	Aroclor 1262	4.0	< 4.0 U
11100-14-4	Aroclor 1268	4.0	< 4.0 U

Reported in Total µg

PCB Surrogate Recovery

Decachlorobiphenyl	151%
Tetrachlorometaxylene	80.6%

YZ49 : 000005

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3580A
Page 1 of 1

Sample ID: SSP-E-20140910
DILUTION

Lab Sample ID: YZ49A
LIMS ID: 14-18330
Matrix: Wipe
Data Release Authorized: MW
Reported: 09/23/14

QC Report No: YZ49-Jorgensen Forge
Project: JFOS Sheet Pile
0995
Date Sampled: 09/10/14
Date Received: 09/10/14

Date Extracted: 09/11/14
Date Analyzed: 09/22/14 13:12
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: No
Acid Cleanup: Yes

Sample Amount: 1.00 Wipe
Final Extract Volume: 40 mL
Dilution Factor: 100
Silica Gel: Yes

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	80	< 80 U
53469-21-9	Aroclor 1242	80	< 80 U
12672-29-6	Aroclor 1248	80	< 80 U
11097-69-1	**Aroclor 1254**	**80**	**860**
11096-82-5	**Aroclor 1260**	**80**	**300**
11104-28-2	Aroclor 1221	80	< 80 U
11141-16-5	Aroclor 1232	80	< 80 U
37324-23-5	Aroclor 1262	80	< 80 U
11100-14-4	Aroclor 1268	80	< 80 U

Reported in Total µg

PCB Surrogate Recovery

Decachlorobiphenyl	D
Tetrachlorometaxylene	D

YZ49 : 080815

ANALYTICAL RESOURCES INCORPORATED

SW8082/PCB SURROGATE RECOVERY SUMMARY

Matrix: Wipe

QC Report No: YZ49-Jorgensen Forge
Project: JFOS Sheet Pile
0995

Client ID	DCBP	TCMX	TOT OUT
MB-091114	94.2%	75.5%	0
LCS-091114	95.0%	78.2%	0
SSP-E-20140910	151%	80.6%	0
SSP-E-20140910 DL	D	D	0

	LCS/MB LIMITS	QC LIMITS
(DCBP) = Decachlorobiphenyl	(30-160)	(30-160)
(TCMX) = Tetrachlorometaxylene	(30-160)	(30-160)

Prep Method: SW3580A
Log Number Range: 14-18330 to 14-18330

FORM-II SW8082

YZ49 : 00031

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Page 1 of 1

Sample ID: LCS-091114
LAB CONTROL

Lab Sample ID: LCS-091114
LIMS ID: 14-18330
Matrix: Wipe
Data Release Authorized: MW
Reported: 09/23/14

QC Report No: YZ49-Jorgensen Forge
Project: JFOS Sheet Pile
0995
Date Sampled: 09/10/14
Date Received: 09/10/14

Date Extracted: 09/11/14
Date Analyzed: 09/20/14 03:19
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes

Sample Amount: 1.00 Wipe
Final Extract Volume: 10 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: NA

Analyte	Lab Control	Spike Added	Recovery
Aroclor 1016	4.22	5.00	84.4%
Aroclor 1260	5.15	5.00	103%

PCB Surrogate Recovery

Decachlorobiphenyl	95.0%
Tetrachlorometaxylene	78.2%

Reported in Total µg

FORM III

4

PCB METHOD BLANK SUMMARY

BLANK NO.

YZ49MB1

Lab Name: ANALYTICAL RESOURCES INC — Client: JORGENSEN FORGE

ARI Job No.: YZ49 — Project: JFOS SHEET PILE

Lab Sample ID: YZ49MB1 — Lab File ID: 0919A040

Date Extracted: 09/11/14 — Matrix: SOLID

Date Analyzed: 09/20/14 — Instrument ID: ECD7

Time Analyzed: 0257 — GC Columns: ZB5/ZB35

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
01	YZ49LCS1	YZ49LCS1	09/20/14
02	SSP-E-20140910	YZ49A	09/20/14

ALL RUNS ARE DUAL COLUMN

FORM IV PCB

6F

8082 INITIAL CALIBRATION OF AROCLOR 1016/1260

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: YZ49 Project: JFOS SHEET

GC Column: ZB5 Instrument ID: ECD7

Calibration Date: 07/21/14

SURROGATES

RT WIN	LVL1	LVL2	LVL3	LVL4	LVL5	LVL6	MEAN	%RSD
TCX 5.54- 5.74	0.7845	0.7534	0.7572	0.7562	0.7662	0.7814	0.7665	1.8
DCB 14.43-14.63	1.3847	1.2110	1.1615	1.0771	1.0606	1.0558	1.1584	11.0

Aroclor-1016 Peak RT WIN	LVL1 .02	LVL2 0.05	LVL3 0.1	LVL4 .25	LVL5 0.5	LVL6 1.0	MEAN	%RSD R^2
1 7.54- 7.74	0.0223	0.0208	0.0207	0.0191	0.0182	0.0176	0.0198	9.0
2 8.07- 8.27	0.0659	0.0646	0.0641	0.0610	0.0595	0.0590	0.0623	4.6
3 8.25- 8.45	0.0279	0.0275	0.0272	0.0258	0.0248	0.0242	0.0262	6.0
4 8.68- 8.88	0.0138	0.0136	0.0134	0.0124	0.0115	0.0110	0.0126	9.3

AROCLOR AVERAGE %RSD = 7.2

Aroclor-1260 Peak RT WIN	LVL1 .02	LVL2 0.05	LVL3 0.1	LVL4 .25	LVL5 0.5	LVL6 1.0	MEAN	%RSD R^2
1 11.86-12.06	0.0500	0.0483	0.0483	0.0424	0.0425	0.0413	0.0455	8.4
2 12.18-12.38	0.0463	0.0454	0.0458	0.0407	0.0411	0.0403	0.0432	6.6
3 12.55-12.75	0.1222	0.1211	0.1241	0.1146	0.1186	0.1191	0.1200	2.8
4 12.95-13.15	0.0589	0.0584	0.0596	0.0545	0.0558	0.0556	0.0571	3.7
5 13.13-13.33	0.0377	0.0375	0.0380	0.0349	0.0356	0.0354	0.0365	3.7

AROCLOR AVERAGE %RSD = 5.0

FORM VI PCB-1

6F

8082 INITIAL CALIBRATION OF AROCLOR 1016/1260

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: YZ49 Project: JFOS SHEET

GC Column: ZB35 Instrument ID: ECD7

Calibration Date: 07/21/14

SURROGATES

	RT WIN	LVL1	LVL2	LVL3	LVL4	LVL5	LVL6	MEAN	%RSD
TCX	5.13- 5.33	1.2192	1.0817	1.0669	1.0070	0.9783	0.9559	1.0515	9.1
DCB	14.43-14.63	1.3661	1.2314	1.1539	1.0208	0.9832	0.9553	1.1184	14.4

Aroclor-1016 Peak	RT WIN	LVL1 .02	LVL2 0.05	LVL3 0.1	LVL4 .25	LVL5 0.5	LVL6 1.0	MEAN	%RSD R^2
1	7.27- 7.47	0.0527	0.0481	0.0455	0.0408	0.0377	0.0349	0.0433	15.5
2	8.08- 8.28	0.1060	0.0978	0.0936	0.0846	0.0805	0.0765	0.0898	12.5
3	8.56- 8.76	0.0277	0.0265	0.0252	0.0224	0.0214	0.0201	0.0239	12.7
4	8.69- 8.89	0.0328	0.0297	0.0279	0.0244	0.0228	0.0212	0.0265	16.7

AROCLOR AVERAGE %RSD = 14.4

Aroclor-1260 Peak	RT WIN	LVL1 .02	LVL2 0.05	LVL3 0.1	LVL4 .25	LVL5 0.5	LVL6 1.0	MEAN	%RSD R^2
1	11.72-11.92	0.0988	0.0908	0.0865	0.0740	0.0722	0.0686	0.0818	14.6
2	12.26-12.46	0.0957	0.0867	0.0839	0.0716	0.0698	0.0661	0.0790	14.6
3	12.54-12.74	0.1858	0.1704	0.1689	0.1485	0.1474	0.1420	0.1605	10.7
4	13.10-13.30	0.1309	0.1214	0.1167	0.1012	0.0989	0.0941	0.1105	13.2

AROCLOR AVERAGE %RSD = 13.3

FORM VI PCB-1

6G

8082 INITIAL CALIBRATION OF SINGLE POINT PCBs

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: YZ49 Project: JFOS SHEET

GC Column: ZB5 Instrument ID: ECD7

Calibration Date: 07/21/14

Aroclor-1221			
Peak	RT	RT WIN	Cal Factor
1	6.091	5.99- 6.19	0.00772
2	6.298	6.20- 6.40	0.00684
3	6.422	6.32- 6.52	0.02014

Aroclor-1232			
Peak	RT	RT WIN	Cal Factor
1	7.640	7.54- 7.74	0.00792
2	8.165	8.06- 8.26	0.02446
3	8.353	8.25- 8.45	0.01050
4	8.489	8.39- 8.59	0.00763

Aroclor-1242			
Peak	RT	RT WIN	Cal Factor
1	7.641	7.54- 7.74	0.01529
2	8.165	8.06- 8.26	0.04818
3	8.353	8.25- 8.45	0.02047
4	9.326	9.23- 9.43	0.01988

Aroclor-1248			
Peak	RT	RT WIN	Cal Factor
1	8.154	8.05- 8.25	0.03055
2	8.778	8.68- 8.88	0.01755
3	9.321	9.22- 9.42	0.03044
4	9.797	9.70- 9.90	0.03767

6G

8082 INITIAL CALIBRATION OF SINGLE POINT PCBs

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: YZ49 Project: JFOS SHEET

GC Column: ZB5 Instrument ID: ECD7

Calibration Date: 07/21/14

Aroclor-1254			
Peak	RT	RT WIN	Cal Factor
1	10.143	10.04-10.24	0.03598
2	10.533	10.43-10.63	0.02488
3	10.675	10.57-10.77	0.04837
4	11.037	10.94-11.14	0.05159
5	11.733	11.63-11.83	0.05112

Aroclor-1262			
Peak	RT	RT WIN	Cal Factor
1	11.963	11.86-12.06	0.06338
2	12.280	12.18-12.38	0.04986
3	12.652	12.55-12.75	0.13623
4	13.049	12.95-13.15	0.04413
5	13.162	13.06-13.26	0.05810

Aroclor-1268			
Peak	RT	RT WIN	Cal Factor
1	13.162	13.06-13.26	0.16503
2	13.231	13.13-13.33	0.16508
3	13.595	13.49-13.69	0.14388
4	14.225	14.12-14.32	0.44705

YZ49:080813

6G

8082 INITIAL CALIBRATION OF SINGLE POINT PCBs

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: YZ49 Project: JFOS SHEET

GC Column: ZB35 Instrument ID: ECD7

Calibration Date: 07/21/14

Aroclor-1221			
Peak	RT	RT WIN	Cal Factor
1	6.065	5.97- 6.17	0.01356
2	6.361	6.26- 6.46	0.00778
3	6.495	6.39- 6.59	0.02335
4	7.386	7.29- 7.49	0.00770

Aroclor-1232			
Peak	RT	RT WIN	Cal Factor
1	6.494	6.39- 6.59	0.01645
2	7.372	7.27- 7.47	0.01890
3	8.189	8.09- 8.29	0.03588
4	8.798	8.70- 8.90	0.01174

Aroclor-1242			
Peak	RT	RT WIN	Cal Factor
1	6.489	6.39- 6.59	0.01564
2	7.366	7.27- 7.47	0.03278
3	8.182	8.08- 8.28	0.06800
4	9.263	9.16- 9.36	0.02490

Aroclor-1248			
Peak	RT	RT WIN	Cal Factor
1	7.356	7.26- 7.46	0.01614
2	8.170	8.07- 8.27	0.04422
3	8.859	8.76- 8.96	0.02396
4	10.206	10.11-10.31	0.04565

6G

8082 INITIAL CALIBRATION OF SINGLE POINT PCBs

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: YZ49 Project: JFOS SHEET

GC Column: ZB35 Instrument ID: ECD7

Calibration Date: 07/21/14

Aroclor-1254			
Peak	RT	RT WIN	Cal Factor
1	9.910	9.81-10.01	0.03100
2	10.100	10.00-10.20	0.03897
3	10.795	10.70-10.90	0.06467
4	11.055	10.96-11.16	0.06573
5	11.821	11.72-11.92	0.04902

Aroclor-1262			
Peak	RT	RT WIN	Cal Factor
1	12.370	12.27-12.47	0.08614
2	12.643	12.54-12.74	0.17319
3	13.152	13.05-13.25	0.07678
4	13.211	13.11-13.31	0.11751
5	13.853	13.75-13.95	0.06071

Aroclor-1268			
Peak	RT	RT WIN	Cal Factor
1	13.152	13.05-13.25	0.18571
2	13.215	13.12-13.32	0.17538
3	13.569	13.47-13.67	0.14298
4	14.234	14.13-14.33	0.39624

YZ49 060721

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: YZ49 Project: JFOS SHEET

GC Column: ZB5 Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/20/14

Lab Standard ID: AR1242 Time Analyzed :0108

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1242-1	7.64	7.54	7.74	255.9	250.0	2.4
Aroclor-1242-2	8.16	8.06	8.26	241.7	250.0	-3.3
Aroclor-1242-3	8.35	8.25	8.45	239.3	250.0	-4.3
Aroclor-1242-4	9.33	9.23	9.43	241.3	250.0	-3.5

AVERAGE %D = 3.4

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: YZ49 Project: JFOS SHEET

GC Column: ZB5 Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/20/14

Lab Standard ID: AR1660 Time Analyzed :0130

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	7.64	7.54	7.74	263.3	250.0	5.3
Aroclor-1016-2	8.16	8.07	8.27	239.8	250.0	-4.1
Aroclor-1016-3	8.35	8.25	8.45	242.1	250.0	-3.1
Aroclor-1016-4	8.78	8.68	8.88	245.9	250.0	-1.6

AVERAGE %D = 3.5

Date Analyzed :09/20/14

Lab Standard ID: AR1660 Time Analyzed :0130

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	11.96	11.86	12.06	263.9	250.0	5.6
Aroclor-1260-2	12.28	12.18	12.38	255.7	250.0	2.3
Aroclor-1260-3	12.65	12.55	12.75	268.4	250.0	7.4
Aroclor-1260-4	13.05	12.95	13.15	254.7	250.0	1.9
Aroclor-1260-5	13.23	13.13	13.33	243.9	250.0	-2.4

AVERAGE %D = 3.9

FORM VII PCB

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: YZ49 Project: JFOS SHEET

GC Column: ZB5 Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/20/14

Lab Standard ID: AR1248 Time Analyzed :0508

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1248-1	8.16	8.05	8.25	249.9	250.0	-0.0
Aroclor-1248-2	8.78	8.68	8.88	246.9	250.0	-1.2
Aroclor-1248-3	9.33	9.22	9.42	246.2	250.0	-1.5
Aroclor-1248-4	9.80	9.70	9.90	249.0	250.0	-0.4

AVERAGE %D = 0.8

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: YZ49 Project: JFOS SHEET

GC Column: ZB5 Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/20/14

Lab Standard ID: AR1660 Time Analyzed :0530

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	7.64	7.54	7.74	265.8	250.0	6.3
Aroclor-1016-2	8.16	8.07	8.27	241.1	250.0	-3.6
Aroclor-1016-3	8.35	8.25	8.45	244.9	250.0	-2.0
Aroclor-1016-4	8.78	8.68	8.88	248.8	250.0	-0.5

AVERAGE %D = 3.1

Date Analyzed :09/20/14

Lab Standard ID: AR1660 Time Analyzed :0530

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	11.96	11.86	12.06	267.8	250.0	7.1
Aroclor-1260-2	12.28	12.18	12.38	260.0	250.0	4.0
Aroclor-1260-3	12.65	12.55	12.75	272.6	250.0	9.0
Aroclor-1260-4	13.05	12.95	13.15	260.4	250.0	4.2
Aroclor-1260-5	13.23	13.13	13.33	249.7	250.0	-0.1

AVERAGE %D = 4.9

FORM VII PCB

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: YZ49 Project: JFOS SHEET

GC Column: ZB35 Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/20/14

Lab Standard ID: AR1242 Time Analyzed :0108

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1242-1	6.49	6.39	6.59	293.4	250.0	17.3
Aroclor-1242-2	7.37	7.27	7.47	295.7	250.0	18.3
Aroclor-1242-3	8.18	8.08	8.28	285.4	250.0	14.2
Aroclor-1242-4	9.26	9.16	9.36	284.0	250.0	13.6

AVERAGE %D = 15.8

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: YZ49 Project: JFOS SHEET

GC Column: ZB35 Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/20/14

Lab Standard ID: AR1660 Time Analyzed :0130

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	7.36	7.27	7.47	293.0	250.0	17.2
Aroclor-1016-2	8.18	8.08	8.28	273.7	250.0	9.5
Aroclor-1016-3	8.65	8.56	8.76	283.3	250.0	13.3
Aroclor-1016-4	8.79	8.69	8.89	278.3	250.0	11.3

AVERAGE %D = 12.8

Date Analyzed :09/20/14

Lab Standard ID: AR1660 Time Analyzed :0130

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	11.82	11.72	11.92	224.2	250.0	-10.3
Aroclor-1260-2	12.36	12.26	12.46	230.3	250.0	-7.9
Aroclor-1260-3	12.64	12.54	12.74	234.7	250.0	-6.1
Aroclor-1260-4	13.20	13.10	13.30	220.5	250.0	-11.8

AVERAGE %D = 9.0

FORM VII PCB

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: YZ49 Project: JFOS SHEET

GC Column: ZB35 Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/20/14

Lab Standard ID: AR1248 Time Analyzed :0508

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1248-1	7.36	7.26	7.46	302.6	250.0	21.0
Aroclor-1248-2	8.18	8.07	8.27	295.6	250.0	18.2
Aroclor-1248-3	8.86	8.76	8.96	279.2	250.0	11.7
Aroclor-1248-4	10.21	10.11	10.31	305.9	250.0	22.4

AVERAGE %D = 18.3

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: YZ49 Project: JFOS SHEET

GC Column: ZB35 Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/20/14

Lab Standard ID: AR1660 Time Analyzed :0530

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	7.36	7.27	7.47	291.0	250.0	16.4
Aroclor-1016-2	8.18	8.08	8.28	271.9	250.0	8.8
Aroclor-1016-3	8.65	8.56	8.76	282.7	250.0	13.1
Aroclor-1016-4	8.79	8.69	8.89	278.2	250.0	11.3

AVERAGE %D = 12.4

Date Analyzed :09/20/14

Lab Standard ID: AR1660 Time Analyzed :0530

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	11.82	11.72	11.92	224.0	250.0	-10.4
Aroclor-1260-2	12.36	12.26	12.46	230.0	250.0	-8.0
Aroclor-1260-3	12.64	12.54	12.74	235.7	250.0	-5.7
Aroclor-1260-4	13.20	13.10	13.30	221.1	250.0	-11.5

AVERAGE %D = 8.9

FORM VII PCB

FORM 8
PCB INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: YZ49 Project: JFOS SHEET

GC Column: ZB5 ID: 0.53(mm) Instrument ID: ECD7

Init. Calib. Date: 07/21/14

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

					IS1 AREA	RT	IS2 AREA	RT
				ICAL MIDPT	4434421	2.698	4077244	14.794
				UPPER LIMIT	8868842	2.798	8154488	14.894
				LOWER LIMIT	2217210	2.598	2038622	14.694
	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME	IS1 AREA	RT	IS2 AREA	RT
01	ZZZZZ	ZZZZZ	07/21/14	1626	4373805	2.692	3760196	14.794
02		0.25PPMAR166	07/21/14	1648	4434421	2.698	4077244	14.794
03		0.02PPMAR166	07/21/14	1710	4447124	2.695	3891807	14.794
04		0.05PPMAR166	07/21/14	1732	4441352	2.694	3882218	14.795
05		1PPMAR1660	07/21/14	1754	4414652	2.693	3889578	14.795
06		0.1PPMAR1660	07/21/14	1816	4521857	2.697	3895919	14.795
07		0.5PPMAR1660	07/21/14	1837	4493869	2.693	3945031	14.795
08		AR1242	07/21/14	1859	4438700	2.692	3879215	14.795
09		AR1248	07/21/14	1921	4414839	2.697	3887155	14.795
10		AR1254	07/21/14	1943	4508938	2.695	3960286	14.795
11		AR2162	07/21/14	2005	4494447	2.696	3952241	14.795
12		AR3268	07/21/14	2027	4552734	2.702	4020488	14.795
13	ZZZZZ	ZZZZZ	07/21/14	2049	4445508	2.694	3936762	14.795
14	ZZZZZ	ZZZZZ	07/21/14	2111	4558602	2.696	4045633	14.795
15	ZZZZZ	ZZZZZ	07/21/14	2133	4461342	2.697	4016945	14.795
16	ZZZZZ	ZZZZZ	07/21/14	2154	4529995	2.696	4048326	14.794
17	ZZZZZ	ZZZZZ	07/21/14	2216	4527689	2.697	4039776	14.794
18	ZZZZZ	ZZZZZ	07/21/14	2238	4512425	2.694	4015293	14.794
19		AR1242	09/20/14	0108	5417163	2.703	4160853	14.794
20		AR1660	09/20/14	0130	4679826	2.700	4027634	14.794
21	YZ49MB1	YZ49MB1	09/20/14	0257	5178898	2.703	4186334	14.793
22	ZZZZZ	ZZZZZ	09/20/14	0319	5144447	2.704	4139434	14.793
23	SSP-E-201409	YZ49A	09/20/14	0341	5354577	2.705	4763441	14.795
24		AR1248	09/20/14	0508	5158208	2.704	4516663	14.793
25		AR1660	09/20/14	0530	4694209	2.701	4060251	14.794

IS1 = 1-Bromo-2-Nitrobenzene RT Window = RT +/- 0.1 min
IS2 = Hexabromobiphenyl

* Indicates value outside QC Limits

YZ49 : 060634

FORM VIII PCB

FORM 8
PCB INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: YZ49 Project: JFOS SHEET

GC Column: ZB35 ID: 0.53(mm) Instrument ID: ECD7

Init. Calib. Date: 07/21/14

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

		IS1 AREA	RT	IS2 AREA	RT
	ICAL MIDPT	11221020	3.068	7927142	15.138
	UPPER LIMIT	22442040	3.168	15854284	15.238
	LOWER LIMIT	5610510	2.968	3963571	15.038

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME	IS1 AREA	RT	IS2 AREA	RT
01	ZZZZZ	ZZZZZ	07/21/14	1626	11004730	3.063	7358659	15.138
02		0.25PPMAR166	07/21/14	1648	11221020	3.066	7927142	15.138
03		0.02PPMAR166	07/21/14	1710	11165593	3.066	7592758	15.138
04		0.05PPMAR166	07/21/14	1732	11143504	3.065	7552963	15.139
05		1PPMAR1660	07/21/14	1754	11066585	3.065	7627214	15.138
06		0.1PPMAR1660	07/21/14	1816	11325344	3.067	7687777	15.138
07		0.5PPMAR1660	07/21/14	1837	11352435	3.063	7765451	15.138
08		AR1242	07/21/14	1859	11252651	3.063	7692669	15.138
09		AR1248	07/21/14	1921	11180919	3.066	7655141	15.138
10		AR1254	07/21/14	1943	11293843	3.066	7784494	15.138
11		AR2162	07/21/14	2005	11029310	3.067	7767574	15.137
12		AR3268	07/21/14	2027	11362773	3.070	7876862	15.138
13	ZZZZZ	ZZZZZ	07/21/14	2049	11184271	3.065	7717457	15.139
14	ZZZZZ	ZZZZZ	07/21/14	2111	11369418	3.066	7903232	15.138
15	ZZZZZ	ZZZZZ	07/21/14	2133	11175868	3.067	7850594	15.137
16	ZZZZZ	ZZZZZ	07/21/14	2154	11269109	3.066	7889154	15.137
17	ZZZZZ	ZZZZZ	07/21/14	2216	11177181	3.066	7868041	15.138
18	ZZZZZ	ZZZZZ	07/21/14	2238	11096232	3.064	7812050	15.137
19		AR1242	09/20/14	0108	9231366	3.066	7023173	15.132
20		AR1660	09/20/14	0130	7770669	3.065	6609828	15.132
21	YZ49MB1	YZ49MB1	09/20/14	0257	11075822	3.066	7203088	15.131
22	YZ49LCS1	YZ49LCS1	09/20/14	0319	11007344	3.067	7095502	15.132
23	SSP-E-201409	YZ49A	09/20/14	0341	11509087	3.067	14399038	15.132
24		AR1248	09/20/14	0508	8863276	3.067	7646947	15.132
25		AR1660	09/20/14	0530	7902677	3.065	6867926	15.132

IS1 = 1-Bromo-2-Nitrobenzene RT Window = RT +/- 0.1 min
IS2 = Hexabromobiphenyl

* Indicates value outside QC Limits

FORM VIII PCB

Analytical Resources, Inc. Report No. YY75, dated Sept. 23, 2014

Analytical Resources, Incorporated
Analytical Chemists and Consultants

23 September 2014

Miles Dyer
Jorgensen Forge Corporation
8531 East Marginal Way South
Seattle, WA 98108

RE: JFOS Sheet Pile
ARI Job No.: YZ75

Dear Miles:

Please find enclosed the original Chain-of-Custody (COC) record, sample receipt documentation, and the final data for the sample from the project referenced above. Analytical Resources, Inc. (ARI) accepted one soil sample on September 11, 2014. For further details regarding sample receipt please refer to the enclosed Cooler Receipt Form. The sample was analyzed for PCBs as requested.

The percent differences (%Ds) for Aroclors 1016 and 1248 were high for one column for the CCALs that bracketed the analysis of this sample. This column was used for confirmation only. The data from the primary column was used for quantitation.

The pecent recovery for the surrogate, TCMX, was low following the analysis of this sample. Since the percent recovery for the secondary surrogate, DCBP, was within established QC limits, no corrective actions were taken.

There were no further anomalies associated with the analysis of this sample.

An electronic copy of this report and all supporting raw data will remain on file with ARI. Should you have any questions regarding these results, please feel free to contact me at your convenience.

Respectfully,

ANALYTICAL RESOURCES, INC.

Mark D. Harris
Project Manager
206/695-6210
markh@arilabs.com
www.arilabs.com

cc: Dee Gardner, Sound Earth, Inc.
Mingta Lin, Pyron Envurinmental
eFile YZ75

Enclosures

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 1275	Turn-around Requested: STANDARD	Page: 1 of 1	
ARI Client Company: JORGENSEN FORGE	Phone: 206.762.1100	Date: 09.11.2014	Ice Present? Y
Client Contact: MILES DYER		No. of Coolers: 1	Cooler Temps: 20.1
Client Project Name: JFOS SHEET PILE			
Client Project #:	Samplers: DHG		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No Containers	Analysis Requested: PCBs by EPA 8082	Notes/Comments
SSP-SOLIDS-20140911	09.11.2014	1255	SOIL	1	X	

Comments/Special Instructions
- CC: DEEGARDNER AT SOUNDEARTH dgardner@soundearthinc.com
- LEVEL 2B
- 9 AROCLORS

	Relinquished by	Received by	Relinquished by	Received by
(Signature)	DH			
Printed Name	DEE GARDNER	Jennifer Mitsop		
Company	SOUNDEARTH	ARI		
Date & Time	09.11.2014 @ 1345	9/11/14 1345		

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Jorgensen Forge — Project Name: JFOS Sheet Pile

COC No(s): _____ (NA) — Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: YZ75 — Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 20.1
Time: 1345

If cooler temperature is out of compliance fill out form 00070F — Temp Gun ID#: 90877952

Cooler Accepted by: JM — Date: 9/11/14 — Time: 1345

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used? Bubble Wrap Wet Ice (Gel Packs) Baggies Foam Block Paper Other: _____			
Was sufficient ice used (if appropriate)?	NA	YES	(NO)
Were all bottles sealed in individual plastic bags?		YES	(NO)
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs).	(NA)	YES	NO
Were all VOC vials free of air bubbles?	(NA)	YES	NO
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI	(NA)		

Was Sample Split by ARI: (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

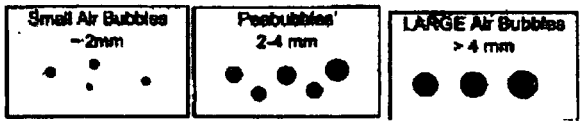
Samples Logged by: AV — Date: 9/11/14 — Time: 1650

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: _____ Date: _____



Small → "sm" (< 2 mm)
Peabubbles → "pb" (2 to < 4 mm)
Large → "lg" (4 to < 6 mm)
Headspace → "hs" (> 6 mm)

YZ75 : 00003

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Temperature Compliance Form

Cooler#: 1	Temperature(°C): 20.1	
Sample ID	**Bottle Count**	**Bottle Type**
SSP-SOLIDS-20140911	1	8oz Wide Mouth

Cooler#:	Temperature(°C):	
Sample ID	**Bottle Count**	**Bottle Type**

Cooler#:	Temperature(°C):	
Sample ID	**Bottle Count**	**Bottle Type**

Cooler#:	Temperature(°C):	
Sample ID	**Bottle Count**	**Bottle Type**

Completed by: AV Date: 9/11/14 Time: 1052

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: YZ75
Client: Jorgensen Forge
Project Event: N/A
Project Name: JFOS Sheet Pile

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	SSP-SOLIDS-20140911	YZ75A	14-18512	Soil	09/11/14 12:55	09/11/14 13:45

YZ75 00005

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 12/31/13

Inorganic Data

U	Indicates that the target analyte was not detected at the reported concentration
*	Duplicate RPD is not within established control limits
B	Reported value is less than the CRDL but ≥ the Reporting Limit
N	Matrix Spike recovery not within established control limits
NA	Not Applicable, analyte not spiked
H	The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
L	Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U	Indicates that the target analyte was not detected at the reported concentration
*	Flagged value is not within established control limits
B	Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.
J	Estimated concentration when the value is less than ARI's established reporting limits
D	The spiked compound was not detected due to sample extract dilution
E	Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

Q	Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).
S	Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte
NA	The flagged analyte was not analyzed for
NR	Spiked compound recovery is not reported due to chromatographic interference
NS	The flagged analyte was not spiked into the sample
M	Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"
Y	The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.
EMPC	Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**
C	The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column
P	The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference
X	Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**
Z	Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**

Geotechnical Data

A	The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.
F	Samples were frozen prior to particle size determination
SM	Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations
SS	Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis
W	Weight of sample in some pipette aliquots was below the level required for accurate weighting

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3546
Page 1 of 1

Sample ID: MB-091614
METHOD BLANK

Lab Sample ID: MB-091614
LIMS ID: 14-18512
Matrix: Soil
Data Release Authorized: TMW
Reported: 09/23/14

QC Report No: YZ75-Jorgensen Forge
Project: JFOS Sheet Pile

Date Sampled: NA
Date Received: NA

Date Extracted: 09/16/14
Date Analyzed: 09/19/14 17:50
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 12.5 g
Final Extract Volume: 2.50 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	4.0	< 4.0 U
53469-21-9	Aroclor 1242	4.0	< 4.0 U
12672-29-6	Aroclor 1248	4.0	< 4.0 U
11097-69-1	Aroclor 1254	4.0	< 4.0 U
11096-82-5	Aroclor 1260	4.0	< 4.0 U
11104-28-2	Aroclor 1221	4.0	< 4.0 U
11141-16-5	Aroclor 1232	4.0	< 4.0 U
37324-23-5	Aroclor 1262	4.0	< 4.0 U
11100-14-4	Aroclor 1268	4.0	< 4.0 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	93.8%
Tetrachlorometaxylene	72.5%

FORM I

YZ75-000003

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3546
Page 1 of 1

Sample ID: SSP-SOLIDS-20140911
SAMPLE

Lab Sample ID: YZ75A
LIMS ID: 14-18512
Matrix: Soil
Data Release Authorized: MW
Reported: 09/23/14

QC Report No: YZ75-Jorgensen Forge
Project: JFOS Sheet Pile

Date Sampled: 09/11/14
Date Received: 09/11/14

Date Extracted: 09/16/14
Date Analyzed: 09/20/14 02:35
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 4.92 g-dry-wt
Final Extract Volume: 2.50 mL
Dilution Factor: 10.0
Silica Gel: Yes

Percent Moisture: 1.7%

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	100	< 100 U
53469-21-9	Aroclor 1242	100	< 100 U
12672-29-6	**Aroclor 1248**	**100**	**2,400**
11097-69-1	**Aroclor 1254**	**100**	**3,100**
11096-82-5	**Aroclor 1260**	**100**	**900**
11104-28-2	Aroclor 1221	100	< 100 U
11141-16-5	Aroclor 1232	100	< 100 U
37324-23-5	Aroclor 1262	100	< 100 U
11100-14-4	Aroclor 1268	100	< 100 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	50.0%
Tetrachlorometaxylene	43.2%

FORM I

YZ75:000016

ANALYTICAL RESOURCES INCORPORATED

SW8082/PCB SOIL/SOLID/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: YZ75-Jorgensen Forge
Project: JFOS Sheet Pile

Client ID	DCBP % REC	DCBP LCL-UCL	TCMX % REC	TCMX LCL-UCL	TOT OUT
MB-091614	93.8%	59-115	72.5%	58-112	0
LCS-091614	89.2%	59-115	71.8%	58-112	0
LCSD-091614	92.0%	59-115	68.2%	58-112	0
SSP-SOLIDS-20140911	50.0%	47-120	43.2%*	53-116	1

Microwave (MARS) Control Limits PCBSMI
Prep Method: SW3546
Log Number Range: 14-18512 to 14-18512

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Page 1 of 1

Sample ID: LCS-091614
LCS/LCSD

Lab Sample ID: LCS-091614
LIMS ID: 14-18512
Matrix: Soil
Data Release Authorized:
Reported: 09/23/14

QC Report No: YZ75-Jorgensen Forge
Project: JFOS Sheet Pile

Date Sampled: NA
Date Received: NA

Date Extracted LCS/LCSD: 09/16/14

Date Analyzed LCS: 09/19/14 18:12
LCSD: 09/19/14 18:34
Instrument/Analyst LCS: ECD7/JGR
LCSD: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount LCS: 12.5 g-dry-wt
LCSD: 12.5 g-dry-wt
Final Extract Volume LCS: 2.50 mL
LCSD: 2.50 mL
Dilution Factor LCS: 1.00
LCSD: 1.00
Silica Gel: Yes

Percent Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Aroclor 1016	77.0	101	76.2%	76.7	101	75.9%	0.4%
Aroclor 1260	86.8	101	85.9%	91.8	101	90.9%	5.6%

PCB Surrogate Recovery

	LCS	LCSD
Decachlorobiphenyl	89.2%	92.0%
Tetrachlorometaxylene	71.8%	68.2%

Results reported in µg/kg (ppb)
RPD calculated using sample concentrations per SW846.

YZ75:000012

4

PCB METHOD BLANK SUMMARY

BLANK NO.

YZ45MBS1

Lab Name: ANALYTICAL RESOURCES INC — Client: THE BOEING COMPANY

ARI Job No.: YZ75 — Project: BP2 PERIMETER

Lab Sample ID: YZ45MBS1 — Lab File ID: 0919A015

Date Extracted: 09/16/14 — Matrix: SOLID

Date Analyzed: 09/19/14 — Instrument ID: ECD7

Time Analyzed: 1750 — GC Columns: ZB5/ZB35

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
01	YZ45LCSS1	YZ45LCSS1	09/19/14
02	YZ45LCSDS1	YZ45LCSDS1	09/19/14
03	SSP-SOLIDS-20140911	YZ75A	09/20/14

ALL RUNS ARE DUAL COLUMN

FORM IV PCB

YZ75:006013

6F

8082 INITIAL CALIBRATION OF AROCLOR 1016/1260

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN FORGE

ARI Job No.: YZ75 Project: JOFS SHEET PILE

GC Column: ZB5 Instrument ID: ECD7

Calibration Date: 07/21/14

SURROGATES

	RT WIN	LVL1	LVL2	LVL3	LVL4	LVL5	LVL6	MEAN	%RSD
TCX	5.54- 5.74	0.7845	0.7534	0.7572	0.7562	0.7662	0.7814	0.7665	1.8
DCB	14.43-14.63	1.3847	1.2110	1.1615	1.0771	1.0606	1.0558	1.1584	11.0

Aroclor-1016 Peak	RT WIN	LVL1 .02	LVL2 0.05	LVL3 0.1	LVL4 .25	LVL5 0.5	LVL6 1.0	MEAN	%RSD R^2
1	7.54- 7.74	0.0223	0.0208	0.0207	0.0191	0.0182	0.0176	0.0198	9.0
2	8.07- 8.27	0.0659	0.0646	0.0641	0.0610	0.0595	0.0590	0.0623	4.6
3	8.25- 8.45	0.0279	0.0275	0.0272	0.0258	0.0248	0.0242	0.0262	6.0
4	8.68- 8.88	0.0138	0.0136	0.0134	0.0124	0.0115	0.0110	0.0126	9.3

AROCLOR AVERAGE %RSD = 7.2

Aroclor-1260 Peak	RT WIN	LVL1 .02	LVL2 0.05	LVL3 0.1	LVL4 .25	LVL5 0.5	LVL6 1.0	MEAN	%RSD R^2
1	11.86-12.06	0.0500	0.0483	0.0483	0.0424	0.0425	0.0413	0.0455	8.4
2	12.18-12.38	0.0463	0.0454	0.0458	0.0407	0.0411	0.0403	0.0432	6.6
3	12.55-12.75	0.1222	0.1211	0.1241	0.1146	0.1186	0.1191	0.1200	2.8
4	12.95-13.15	0.0589	0.0584	0.0596	0.0545	0.0558	0.0556	0.0571	3.7
5	13.13-13.33	0.0377	0.0375	0.0380	0.0349	0.0356	0.0354	0.0365	3.7

AROCLOR AVERAGE %RSD = 5.0

FORM VI PCB-1

6F

8082 INITIAL CALIBRATION OF AROCLOR 1016/1260

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN FORGE

ARI Job No.: YZ75 Project: JOFS SHEET PILE

GC Column: ZB35 Instrument ID: ECD7

Calibration Date: 07/21/14

SURROGATES

	RT WIN	LVL1	LVL2	LVL3	LVL4	LVL5	LVL6	MEAN	%RSD
TCX	5.13- 5.33	1.2192	1.0817	1.0669	1.0070	0.9783	0.9559	1.0515	9.1
DCB	14.43-14.63	1.3661	1.2314	1.1539	1.0208	0.9832	0.9553	1.1184	14.4

Aroclor-1016 Peak	RT WIN	LVL1 .02	LVL2 0.05	LVL3 0.1	LVL4 .25	LVL5 0.5	LVL6 1.0	MEAN	%RSD R^2
1	7.27- 7.47	0.0527	0.0481	0.0455	0.0408	0.0377	0.0349	0.0433	15.5
2	8.08- 8.28	0.1060	0.0978	0.0936	0.0846	0.0805	0.0765	0.0898	12.5
3	8.56- 8.76	0.0277	0.0265	0.0252	0.0224	0.0214	0.0201	0.0239	12.7
4	8.69- 8.89	0.0328	0.0297	0.0279	0.0244	0.0228	0.0212	0.0265	16.7

AROCLOR AVERAGE %RSD = 14.4

Aroclor-1260 Peak	RT WIN	LVL1 .02	LVL2 0.05	LVL3 0.1	LVL4 .25	LVL5 0.5	LVL6 1.0	MEAN	%RSD R^2
1	11.72-11.92	0.0988	0.0908	0.0865	0.0740	0.0722	0.0686	0.0818	14.6
2	12.26-12.46	0.0957	0.0867	0.0839	0.0716	0.0698	0.0661	0.0790	14.6
3	12.54-12.74	0.1858	0.1704	0.1689	0.1485	0.1474	0.1420	0.1605	10.7
4	13.10-13.30	0.1309	0.1214	0.1167	0.1012	0.0989	0.0941	0.1105	13.2

AROCLOR AVERAGE %RSD = 13.3

FORM VI PCB-1

6G

8082 INITIAL CALIBRATION OF SINGLE POINT PCBs

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN FORGE

ARI Job No.: YZ75 Project: JOFS SHEET PILE

GC Column: ZB5 Instrument ID: ECD7

Calibration Date: 07/21/14

Aroclor-1221			
Peak	RT	RT WIN	Cal Factor
1	6.091	5.99- 6.19	0.00772
2	6.298	6.20- 6.40	0.00684
3	6.422	6.32- 6.52	0.02014

Aroclor-1232			
Peak	RT	RT WIN	Cal Factor
1	7.640	7.54- 7.74	0.00792
2	8.165	8.06- 8.26	0.02446
3	8.353	8.25- 8.45	0.01050
4	8.489	8.39- 8.59	0.00763

Aroclor-1242			
Peak	RT	RT WIN	Cal Factor
1	7.641	7.54- 7.74	0.01529
2	8.165	8.06- 8.26	0.04818
3	8.353	8.25- 8.45	0.02047
4	9.326	9.23- 9.43	0.01988

Aroclor-1248			
Peak	RT	RT WIN	Cal Factor
1	8.154	8.05- 8.25	0.03055
2	8.778	8.68- 8.88	0.01755
3	9.321	9.22- 9.42	0.03044
4	9.797	9.70- 9.90	0.03767

6G

8082 INITIAL CALIBRATION OF SINGLE POINT PCBs

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN FORGE

ARI Job No.: YZ75 Project: JOFS SHEET PILE

GC Column: ZB5 Instrument ID: ECD7

Calibration Date: 07/21/14

Aroclor-1254			
Peak	RT	RT WIN	Cal Factor
1	10.143	10.04-10.24	0.03598
2	10.533	10.43-10.63	0.02488
3	10.675	10.57-10.77	0.04837
4	11.037	10.94-11.14	0.05159
5	11.733	11.63-11.83	0.05112

Aroclor-1262			
Peak	RT	RT WIN	Cal Factor
1	11.963	11.86-12.06	0.06338
2	12.280	12.18-12.38	0.04986
3	12.652	12.55-12.75	0.13623
4	13.049	12.95-13.15	0.04413
5	13.162	13.06-13.26	0.05810

Aroclor-1268			
Peak	RT	RT WIN	Cal Factor
1	13.162	13.06-13.26	0.16503
2	13.231	13.13-13.33	0.16508
3	13.595	13.49-13.69	0.14388
4	14.225	14.12-14.32	0.44705

6G

8082 INITIAL CALIBRATION OF SINGLE POINT PCBs

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN FORGE

ARI Job No.: YZ75 Project: JOFS SHEET PILE

GC Column: ZB35 Instrument ID: ECD7

Calibration Date: 07/21/14

Aroclor-1221			
Peak	RT	RT WIN	Cal Factor
1	6.065	5.97- 6.17	0.01356
2	6.361	6.26- 6.46	0.00778
3	6.495	6.39- 6.59	0.02335
4	7.386	7.29- 7.49	0.00770

Aroclor-1232			
Peak	RT	RT WIN	Cal Factor
1	6.494	6.39- 6.59	0.01645
2	7.372	7.27- 7.47	0.01890
3	8.189	8.09- 8.29	0.03588
4	8.798	8.70- 8.90	0.01174

Aroclor-1242			
Peak	RT	RT WIN	Cal Factor
1	6.489	6.39- 6.59	0.01564
2	7.366	7.27- 7.47	0.03278
3	8.182	8.08- 8.28	0.06800
4	9.263	9.16- 9.36	0.02490

Aroclor-1248			
Peak	RT	RT WIN	Cal Factor
1	7.356	7.26- 7.46	0.01614
2	8.170	8.07- 8.27	0.04422
3	8.859	8.76- 8.96	0.02396
4	10.206	10.11-10.31	0.04565

6G

8082 INITIAL CALIBRATION OF SINGLE POINT PCBs

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN FORGE

ARI Job No.: YZ75 Project: JOFS SHEET PILE

GC Column: ZB35 Instrument ID: ECD7

Calibration Date: 07/21/14

Aroclor-1254			
Peak	RT	RT WIN	Cal Factor
1	9.910	9.81-10.01	0.03100
2	10.100	10.00-10.20	0.03897
3	10.795	10.70-10.90	0.06467
4	11.055	10.96-11.16	0.06573
5	11.821	11.72-11.92	0.04902

Aroclor-1262			
Peak	RT	RT WIN	Cal Factor
1	12.370	12.27-12.47	0.08614
2	12.643	12.54-12.74	0.17319
3	13.152	13.05-13.25	0.07678
4	13.211	13.11-13.31	0.11751
5	13.853	13.75-13.95	0.06071

Aroclor-1268			
Peak	RT	RT WIN	Cal Factor
1	13.152	13.05-13.25	0.18571
2	13.215	13.12-13.32	0.17538
3	13.569	13.47-13.67	0.14298
4	14.234	14.13-14.33	0.39624

YZ75 080821

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN FORGE

ARI Job No.: YZ75

Project: JOFS SHEET PILE

GC Column: ZB5

Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/19/14

Lab Standard ID: AR1248

Time Analyzed :1706

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1248-1	8.16	8.05	8.25	246.1	250.0	-1.6
Aroclor-1248-2	8.78	8.68	8.88	243.3	250.0	-2.7
Aroclor-1248-3	9.32	9.22	9.42	241.0	250.0	-3.6
Aroclor-1248-4	9.80	9.70	9.90	244.8	250.0	-2.1

AVERAGE %D = 2.5

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN FORGE

ARI Job No.: YZ75 Project: JOFS SHEET PILE

GC Column: ZB5 Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/19/14

Lab Standard ID: AR1660 Time Analyzed :1728

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D	
Aroclor-1016-1	7.63	7.54	7.74	331.9	250.0	32.7	<-
Aroclor-1016-2	8.16	8.07	8.27	302.4	250.0	21.0	
Aroclor-1016-3	8.35	8.25	8.45	307.7	250.0	23.1	
Aroclor-1016-4	8.78	8.68	8.88	311.2	250.0	24.5	

AVERAGE %D = 25.3

Date Analyzed :09/19/14

Lab Standard ID: AR1660 Time Analyzed :1728

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	11.96	11.86	12.06	248.0	250.0	-0.8
Aroclor-1260-2	12.28	12.18	12.38	243.3	250.0	-2.7
Aroclor-1260-3	12.65	12.55	12.75	253.7	250.0	1.5
Aroclor-1260-4	13.05	12.95	13.15	242.6	250.0	-3.0
Aroclor-1260-5	13.23	13.13	13.33	230.3	250.0	-7.9

AVERAGE %D = 3.2

FORM VII PCB

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN FORGE

ARI Job No.: YZ75 Project: JOFS SHEET PILE

GC Column: ZB5 Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/19/14

Lab Standard ID: AR1254 Time Analyzed :2107

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1254-1	10.14	10.04	10.24	263.3	250.0	5.3
Aroclor-1254-2	10.53	10.43	10.63	221.5	250.0	-11.4
Aroclor-1254-3	10.67	10.57	10.77	256.4	250.0	2.6
Aroclor-1254-4	11.04	10.94	11.14	257.1	250.0	2.8
Aroclor-1254-5	11.73	11.63	11.83	262.5	250.0	5.0

AVERAGE %D = 5.4

FORM VII PCB

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN FORGE

ARI Job No.: YZ75 Project: JOFS SHEET PILE

GC Column: ZB5 Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/19/14

Lab Standard ID: AR1660 Time Analyzed :2129

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	7.64	7.54	7.74	260.5	250.0	4.2
Aroclor-1016-2	8.17	8.07	8.27	237.2	250.0	-5.1
Aroclor-1016-3	8.35	8.25	8.45	240.2	250.0	-3.9
Aroclor-1016-4	8.78	8.68	8.88	243.9	250.0	-2.4

AVERAGE %D = 3.9

Date Analyzed :09/19/14

Lab Standard ID: AR1660 Time Analyzed :2129

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	11.96	11.86	12.06	255.7	250.0	2.3
Aroclor-1260-2	12.28	12.18	12.38	249.6	250.0	-0.2
Aroclor-1260-3	12.65	12.55	12.75	260.9	250.0	4.4
Aroclor-1260-4	13.05	12.95	13.15	248.5	250.0	-0.6
Aroclor-1260-5	13.23	13.13	13.33	237.2	250.0	-5.1

AVERAGE %D = 2.5

FORM VII PCB

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN FORGE

ARI Job No.: YZ75 Project: JOFS SHEET PILE

GC Column: ZB5 Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/20/14

Lab Standard ID: AR1242 Time Analyzed :0108

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1242-1	7.64	7.54	7.74	255.9	250.0	2.4
Aroclor-1242-2	8.16	8.06	8.26	241.7	250.0	-3.3
Aroclor-1242-3	8.35	8.25	8.45	239.3	250.0	-4.3
Aroclor-1242-4	9.33	9.23	9.43	241.3	250.0	-3.5

AVERAGE %D = 3.4

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN FORGE

ARI Job No.: YZ75 Project: JOFS SHEET PILE

GC Column: ZB5 Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/20/14

Lab Standard ID: AR1660 Time Analyzed :0130

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	7.64	7.54	7.74	263.3	250.0	5.3
Aroclor-1016-2	8.16	8.07	8.27	239.8	250.0	-4.1
Aroclor-1016-3	8.35	8.25	8.45	242.1	250.0	-3.1
Aroclor-1016-4	8.78	8.68	8.88	245.9	250.0	-1.6

AVERAGE %D = 3.5

Date Analyzed :09/20/14

Lab Standard ID: AR1660 Time Analyzed :0130

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	11.96	11.86	12.06	263.9	250.0	5.6
Aroclor-1260-2	12.28	12.18	12.38	255.7	250.0	2.3
Aroclor-1260-3	12.65	12.55	12.75	268.4	250.0	7.4
Aroclor-1260-4	13.05	12.95	13.15	254.7	250.0	1.9
Aroclor-1260-5	13.23	13.13	13.33	243.9	250.0	-2.4

AVERAGE %D = 3.9

FORM VII PCB

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN FORGE

ARI Job No.: YZ75 Project: JOFS SHEET PILE

GC Column: ZB5 Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/20/14

Lab Standard ID: AR1248 Time Analyzed :0508

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1248-1	8.16	8.05	8.25	249.9	250.0	-0.0
Aroclor-1248-2	8.78	8.68	8.88	246.9	250.0	-1.2
Aroclor-1248-3	9.33	9.22	9.42	246.2	250.0	-1.5
Aroclor-1248-4	9.80	9.70	9.90	249.0	250.0	-0.4

AVERAGE %D = 0.8

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN FORGE

ARI Job No.: YZ75 Project: JOFS SHEET PILE

GC Column: ZB5 Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/20/14

Lab Standard ID: AR1660 Time Analyzed :0530

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	7.64	7.54	7.74	265.8	250.0	6.3
Aroclor-1016-2	8.16	8.07	8.27	241.1	250.0	-3.6
Aroclor-1016-3	8.35	8.25	8.45	244.9	250.0	-2.0
Aroclor-1016-4	8.78	8.68	8.88	248.8	250.0	-0.5

AVERAGE %D = 3.1

Date Analyzed :09/20/14

Lab Standard ID: AR1660 Time Analyzed :0530

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	11.96	11.86	12.06	267.8	250.0	7.1
Aroclor-1260-2	12.28	12.18	12.38	260.0	250.0	4.0
Aroclor-1260-3	12.65	12.55	12.75	272.6	250.0	9.0
Aroclor-1260-4	13.05	12.95	13.15	260.4	250.0	4.2
Aroclor-1260-5	13.23	13.13	13.33	249.7	250.0	-0.1

AVERAGE %D = 4.9

FORM VII PCB

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN FORGE

ARI Job No.: YZ75 Project: JOFS SHEET PILE

GC Column: ZB35 Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/19/14

Lab Standard ID: AR1248 Time Analyzed :1706

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D	
Aroclor-1248-1	7.36	7.26	7.46	300.8	250.0	20.3	
Aroclor-1248-2	8.17	8.07	8.27	293.6	250.0	17.4	
Aroclor-1248-3	8.86	8.76	8.96	398.4	250.0	59.4	<-
Aroclor-1248-4	10.21	10.11	10.31	299.0	250.0	19.6	

AVERAGE %D = 29.2

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN FORGE

ARI Job No.: YZ75 Project: JOFS SHEET PILE

GC Column: ZB35 Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/19/14

Lab Standard ID: AR1660 Time Analyzed :1728

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	7.36	7.27	7.47	293.8	250.0	17.5
Aroclor-1016-2	8.17	8.08	8.28	271.9	250.0	8.8
Aroclor-1016-3	8.65	8.56	8.76	281.5	250.0	12.6
Aroclor-1016-4	8.79	8.69	8.89	277.2	250.0	10.9

AVERAGE %D = 12.4

Date Analyzed :09/19/14

Lab Standard ID: AR1660 Time Analyzed :1728

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	11.82	11.72	11.92	206.8	250.0	-17.3
Aroclor-1260-2	12.36	12.26	12.46	217.1	250.0	-13.1
Aroclor-1260-3	12.63	12.54	12.74	220.5	250.0	-11.8
Aroclor-1260-4	13.20	13.10	13.30	210.7	250.0	-15.7

AVERAGE %D = 14.5

FORM VII PCB

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN FORGE

ARI Job No.: YZ75 Project: JOFS SHEET PILE

GC Column: ZB35 Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/19/14

Lab Standard ID: AR1254 Time Analyzed :2107

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1254-1	9.91	9.81	10.01	300.3	250.0	20.1
Aroclor-1254-2	10.10	10.00	10.20	297.0	250.0	18.8
Aroclor-1254-3	10.80	10.70	10.90	272.8	250.0	9.1
Aroclor-1254-4	11.06	10.96	11.16	291.2	250.0	16.5
Aroclor-1254-5	11.82	11.72	11.92	294.5	250.0	17.8

AVERAGE %D = 16.5

FORM VII PCB

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN FORGE

ARI Job No.: YZ75 Project: JOFS SHEET PILE

GC Column: ZB35 Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/19/14

Lab Standard ID: AR1660 Time Analyzed :2129

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	7.37	7.27	7.47	292.3	250.0	16.9
Aroclor-1016-2	8.18	8.08	8.28	271.7	250.0	8.7
Aroclor-1016-3	8.66	8.56	8.76	281.5	250.0	12.6
Aroclor-1016-4	8.79	8.69	8.89	276.5	250.0	10.6

AVERAGE %D = 12.2

Date Analyzed :09/19/14

Lab Standard ID: AR1660 Time Analyzed :2129

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	11.82	11.72	11.92	212.8	250.0	-14.9
Aroclor-1260-2	12.36	12.26	12.46	217.7	250.0	-12.9
Aroclor-1260-3	12.64	12.54	12.74	227.6	250.0	-9.0
Aroclor-1260-4	13.20	13.10	13.30	213.8	250.0	-14.5

AVERAGE %D = 12.8

FORM VII PCB

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN FORGE

ARI Job No.: YZ75 Project: JOFS SHEET PILE

GC Column: ZB35 Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/20/14

Lab Standard ID: AR1242 Time Analyzed :0108

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1242-1	6.49	6.39	6.59	293.4	250.0	17.3
Aroclor-1242-2	7.37	7.27	7.47	295.7	250.0	18.3
Aroclor-1242-3	8.18	8.08	8.28	285.4	250.0	14.2
Aroclor-1242-4	9.26	9.16	9.36	284.0	250.0	13.6

AVERAGE %D = 15.8

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN FORGE

ARI Job No.: YZ75 Project: JOFS SHEET PILE

GC Column: ZB35 Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/20/14

Lab Standard ID: AR1660 Time Analyzed :0130

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	7.36	7.27	7.47	293.0	250.0	17.2
Aroclor-1016-2	8.18	8.08	8.28	273.7	250.0	9.5
Aroclor-1016-3	8.65	8.56	8.76	283.3	250.0	13.3
Aroclor-1016-4	8.79	8.69	8.89	278.3	250.0	11.3

AVERAGE %D = 12.8

Date Analyzed :09/20/14

Lab Standard ID: AR1660 Time Analyzed :0130

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	11.82	11.72	11.92	224.2	250.0	-10.3
Aroclor-1260-2	12.36	12.26	12.46	230.3	250.0	-7.9
Aroclor-1260-3	12.64	12.54	12.74	234.7	250.0	-6.1
Aroclor-1260-4	13.20	13.10	13.30	220.5	250.0	-11.8

AVERAGE %D = 9.0

FORM VII PCB

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN FORGE

ARI Job No.: YZ75 Project: JOFS SHEET PILE

GC Column: ZB35 Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/20/14

Lab Standard ID: AR1248 Time Analyzed :0508

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1248-1	7.36	7.26	7.46	302.6	250.0	21.0
Aroclor-1248-2	8.18	8.07	8.27	295.6	250.0	18.2
Aroclor-1248-3	8.86	8.76	8.96	279.2	250.0	11.7
Aroclor-1248-4	10.21	10.11	10.31	305.9	250.0	22.4

AVERAGE %D = 18.3

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN FORGE

ARI Job No.: YZ75 Project: JOFS SHEET PILE

GC Column: ZB35 Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/20/14

Lab Standard ID: AR1660 Time Analyzed :0530

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	7.36	7.27	7.47	291.0	250.0	16.4
Aroclor-1016-2	8.18	8.08	8.28	271.9	250.0	8.8
Aroclor-1016-3	8.65	8.56	8.76	282.7	250.0	13.1
Aroclor-1016-4	8.79	8.69	8.89	278.2	250.0	11.3

AVERAGE %D = 12.4

Date Analyzed :09/20/14

Lab Standard ID: AR1660 Time Analyzed :0530

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	11.82	11.72	11.92	224.0	250.0	-10.4
Aroclor-1260-2	12.36	12.26	12.46	230.0	250.0	-8.0
Aroclor-1260-3	12.64	12.54	12.74	235.7	250.0	-5.7
Aroclor-1260-4	13.20	13.10	13.30	221.1	250.0	-11.5

AVERAGE %D = 8.9

FORM VII PCB

FORM 8
PCB INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN FORGE

ARI Job No.: YZ75 Project: JOFS SHEET PILE

GC Column: ZB5 ID: 0.53(mm) Instrument ID: ECD7

Init. Calib. Date: 07/21/14

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

		IS1 AREA	RT	IS2 AREA	RT
	ICAL MIDPT	4434421	2.698	4077244	14.794
	UPPER LIMIT	8868842	2.798	8154488	14.894
	LOWER LIMIT	2217210	2.598	2038622	14.694

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME	IS1 AREA	RT	IS2 AREA	RT
01	ZZZZZ	ZZZZZ	07/21/14	1626	4373805	2.692	3760196	14.794
02		0.25PPMAR166	07/21/14	1648	4434421	2.698	4077244	14.794
03		0.02PPMAR166	07/21/14	1710	4447124	2.695	3891807	14.794
04		0.05PPMAR166	07/21/14	1732	4441352	2.694	3882218	14.795
05		1PPMAR1660	07/21/14	1754	4414652	2.693	3889578	14.795
06		0.1PPMAR1660	07/21/14	1816	4521857	2.697	3895919	14.795
07		0.5PPMAR1660	07/21/14	1837	4493869	2.693	3945031	14.795
08		AR1242	07/21/14	1859	4438700	2.692	3879215	14.795
09		AR1248	07/21/14	1921	4414839	2.697	3887155	14.795
10		AR1254	07/21/14	1943	4508938	2.695	3960286	14.795
11		AR2162	07/21/14	2005	4494447	2.696	3952241	14.795
12		AR3268	07/21/14	2027	4552734	2.702	4020488	14.795
13	ZZZZZ	ZZZZZ	07/21/14	2049	4445508	2.694	3936762	14.795
14	ZZZZZ	ZZZZZ	07/21/14	2111	4558602	2.696	4045633	14.795
15	ZZZZZ	ZZZZZ	07/21/14	2133	4461342	2.697	4016945	14.795
16	ZZZZZ	ZZZZZ	07/21/14	2154	4529995	2.696	4048326	14.794
17	ZZZZZ	ZZZZZ	07/21/14	2216	4527689	2.697	4039776	14.794
18	ZZZZZ	ZZZZZ	07/21/14	2238	4512425	2.694	4015293	14.794
19		AR1248	09/19/14	1706	5084606	2.698	4863476	14.794
20		AR1660	09/19/14	1728	3601498	2.694	4264893	14.795
21	ZZZZZ	ZZZZZ	09/19/14	1750	4922484	2.698	4576436	14.794
22	ZZZZZ	ZZZZZ	09/19/14	1812	5231575	2.702	4997159	14.793
23	ZZZZZ	ZZZZZ	09/19/14	1834	4980818	2.699	4621050	14.793
24		AR1254	09/19/14	2107	5058352	2.700	4186761	14.794
25		AR1660	09/19/14	2129	4615062	2.702	4106172	14.794
26		AR1242	09/20/14	0108	5417163	2.703	4160853	14.794
27		AR1660	09/20/14	0130	4679826	2.700	4027634	14.794
28	SSP-SOLIDS-2	YZ75A	09/20/14	0235	4828561	2.701	3928957	14.793
29		AR1248	09/20/14	0508	5158208	2.704	4516663	14.793
30		AR1660	09/20/14	0530	4694209	2.701	4060251	14.794

IS1 = 1-Bromo-2-Nitrobenzene RT Window = RT +/- 0.1 min
IS2 = Hexabromobiphenyl

* Indicates value outside QC Limits

FORM VIII PCB

FORM 8
PCB INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN FORGE

ARI Job No.: YZ75 Project: JOFS SHEET PILE

GC Column: ZB35 ID: 0.53(mm) Instrument ID: ECD7

Init. Calib. Date: 07/21/14

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

		IS1 AREA	RT	IS2 AREA	RT
	ICAL MIDPT	11221020	3.068	7927142	15.138
	UPPER LIMIT	22442040	3.168	15854284	15.238
	LOWER LIMIT	5610510	2.968	3963571	15.038

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME	IS1 AREA	RT	IS2 AREA	RT
01	ZZZZZ	ZZZZZ	07/21/14	1626	11004730	3.063	7358659	15.138
02		0.25PPMAR166	07/21/14	1648	11221020	3.068	7927142	15.138
03		0.02PPMAR166	07/21/14	1710	11165593	3.066	7592758	15.138
04		0.05PPMAR166	07/21/14	1732	11143504	3.065	7552963	15.139
05		1PPMAR1660	07/21/14	1754	11066585	3.065	7627214	15.138
06		0.1PPMAR1660	07/21/14	1816	11325344	3.067	7687777	15.138
07		0.5PPMAR1660	07/21/14	1837	11352435	3.063	7765451	15.138
08		AR1242	07/21/14	1859	11252651	3.063	7692669	15.138
09		AR1248	07/21/14	1921	11180919	3.066	7655141	15.138
10		AR1254	07/21/14	1943	11293843	3.066	7784494	15.138
11		AR2162	07/21/14	2005	11029310	3.067	7767574	15.137
12		AR3268	07/21/14	2027	11362773	3.070	7876862	15.138
13	ZZZZZ	ZZZZZ	07/21/14	2049	11184271	3.065	7717457	15.139
14	ZZZZZ	ZZZZZ	07/21/14	2111	11369418	3.066	7903232	15.138
15	ZZZZZ	ZZZZZ	07/21/14	2133	11175868	3.067	7850594	15.137
16	ZZZZZ	ZZZZZ	07/21/14	2154	11269109	3.066	7889154	15.137
17	ZZZZZ	ZZZZZ	07/21/14	2216	11177181	3.066	7868041	15.138
18	ZZZZZ	ZZZZZ	07/21/14	2238	11096232	3.064	7812050	15.137
19		AR1248	09/19/14	1706	8620061	3.061	8237403	15.132
20		AR1660	09/19/14	1728	7669744	3.059	7385174	15.133
21	ZZZZZ	ZZZZZ	09/19/14	1750	10737574	3.061	7837014	15.132
22	ZZZZZ	ZZZZZ	09/19/14	1812	11464103	3.066	8620816	15.132
23	ZZZZZ	ZZZZZ	09/19/14	1834	10863124	3.062	7979226	15.133
24		AR1254	09/19/14	2107	8977955	3.065	7089588	15.132
25		AR1660	09/19/14	2129	7664687	3.066	6756979	15.132
26		AR1242	09/20/14	0108	9231366	3.066	7023173	15.132
27		AR1660	09/20/14	0130	7770669	3.065	6609828	15.132
28	SSP-SOLIDS-2	YZ75A	09/20/14	0235	10437953	3.064	7295314	15.132
29		AR1248	09/20/14	0508	8863276	3.067	7646947	15.132
30		AR1660	09/20/14	0530	7902677	3.065	6867926	15.132

IS1 = 1-Bromo-2-Nitrobenzene RT Window = RT +/- 0.1 min
IS2 = Hexabromobiphenyl

YZ75:000030

* Indicates value outside QC Limits

FORM VIII PCB

Analytical Resources, Inc. Report No. ZA03, dated Sept. 26, 2014

Analytical Resources, Incorporated
Analytical Chemists and Consultants

26 September 2014

Miles Dyer
Jorgensen Forge Corporation
8531 East Marginal Way South
Seattle, WA 98108

RE: JFOS Sheet Pile
ARI Job No.: ZA03

Dear Miles:

Please find enclosed the original Chain-of-Custody (COC) record, sample receipt documentation, and the final data for the sample from the project referenced above. Analytical Resources, Inc. (ARI) accepted one soil sample on September 12, 2014. For further details regarding sample receipt please refer to the enclosed Cooler Receipt Form. The sample was analyzed for PCBs as requested.

There were no anomalies associated with the analysis of this sample.

An electronic copy of this report and all supporting raw data will remain on file with ARI. Should you have any questions regarding these results, please feel free to contact me at your convenience.

Respectfully,

ANALYTICAL RESOURCES, INC.

Mark D. Harris
Project Manager
206/695-6210
markh@arilabs.com
www.arilabs.com

cc: Dee Gardner, Sound Earth, Inc.
eFile ZA03

Enclosures

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: ZA03	Turn-around Requested: STANDARD	Page:	of
ARI Client Company: JORGENSEN FORGE	Phone:	Date:	Ice Present? Y
Client Contact: MILES DYER		No. of Coolers: 1	Cooler Temps: 15.1
Client Project Name: JFOS SHEET PILE			
Client Project #:	Samplers: DOUG		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No Containers	Analysis Requested: PCBs by EPA 8082	Notes/Comments
SSP-SOLIDS-20140912	09.12.14	1500	SOIL	1	X	

Comments/Special Instructions
- CC: DEE GARDNER AT SOUNDEARTH dgardner@soundearthinc.com
- LEVEL III
- 9 AROCLORS

Relinquished by. (Signature)	Received by (Signature)	Relinquished by (Signature)	Received by (Signature)
Printed Name: DEE GARDNER	Printed Name: A. Volgardsen	Printed Name	Printed Name
Company: SOUNDEARTH	Company: ARI	Company	Company
Date & Time: 09.12.2014 @ 1540	Date & Time: 9/12/14 1540	Date & Time.	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Jorgensen Forge — Project Name: WFOS Sheet Pile

COC No(s): NA — Delivered by: Fed-Ex UPS Courier (Hand Delivered) Other: _____

Assigned ARI Job No: ZA03 — Tracking No: NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry): 15.1

Time: 1540

If cooler temperature is out of compliance fill out form 00070F — Temp Gun ID#: 90577952

Cooler Accepted by: AV — Date: 9/12/14 — Time: 1540

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used?	Bubble Wrap (Wet Ice) Gel Packs Baggies Foam Block Paper Other: _____		
Was sufficient ice used (if appropriate)?	NA	YES	(NO)
Were all bottles sealed in individual plastic bags?		YES	(NO)
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...	(NA)	YES	NO
Were all VOC vials free of air bubbles?	(NA)	YES	NO
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI.	(NA)		

Was Sample Split by ARI: (NA) YES — Date/Time: _____ — Equipment: _____ — Split by: _____

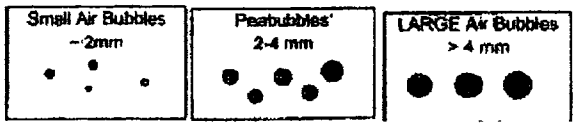
Samples Logged by: AV — Date: 9/12/14 — Time: 1653

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:



Small → "sm" (< 2 mm)
Peabubbles → "pb" (2 to < 4 mm)
Large → "lg" (4 to < 6 mm)
Headspace → "hs" (> 6 mm)

ZA03 : 00003

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Temperature Compliance Form

Cooler#: 1 Temperature(°C): 15.1

Sample ID	Bottle Count	Bottle Type
Sample received above 6°C.		

Cooler#: _____ Temperature(°C): _____

Sample ID	Bottle Count	Bottle Type

Cooler#: _____ Temperature(°C): _____

Sample ID	Bottle Count	Bottle Type

Cooler#: _____ Temperature(°C): _____

Sample ID	Bottle Count	Bottle Type

Completed by: AV Date: 9/12/14 Time: 1633

ZAB3 : 00004

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: ZA03
Client: Jorgensen Forge
Project Event: N/A
Project Name: JFOS Sheet Pile

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	SSP-SOLIDS-20140912	ZA03A	14-18685	Soil	09/12/14 15:00	09/12/14 15:40

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 12/31/13

Inorganic Data

U	Indicates that the target analyte was not detected at the reported concentration
*	Duplicate RPD is not within established control limits
B	Reported value is less than the CRDL but ≥ the Reporting Limit
N	Matrix Spike recovery not within established control limits
NA	Not Applicable, analyte not spiked
H	The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
L	Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U	Indicates that the target analyte was not detected at the reported concentration
*	Flagged value is not within established control limits
B	Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.
J	Estimated concentration when the value is less than ARI's established reporting limits
D	The spiked compound was not detected due to sample extract dilution
E	Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

Q Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).

S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte

NA The flagged analyte was not analyzed for

NR Spiked compound recovery is not reported due to chromatographic interference

NS The flagged analyte was not spiked into the sample

M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

EMPC Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**

C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column

P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

X Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**

Z Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**

Geotechnical Data

A	The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.
F	Samples were frozen prior to particle size determination
SM	Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations
SS	Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis
W	Weight of sample in some pipette aliquots was below the level required for accurate weighting

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3546
Page 1 of 1

Sample ID: SSP-SOLIDS-20140912
SAMPLE

Lab Sample ID: ZA03A
LIMS ID: 14-18685
Matrix: Soil
Data Release Authorized:
Reported: 09/26/14

QC Report No: ZA03-Jorgensen Forge
Project: JFOS Sheet Pile

Date Sampled: 09/12/14
Date Received: 09/12/14

Date Extracted: 09/18/14
Date Analyzed: 09/23/14 21:51
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.01 g-dry-wt
Final Extract Volume: 2.50 mL
Dilution Factor: 10.0
Silica Gel: Yes

Percent Moisture: 0.6%

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	100	< 100 U
53469-21-9	Aroclor 1242	100	< 100 U
12672-29-6	**Aroclor 1248**	**100**	**3,600**
11097-69-1	**Aroclor 1254**	**100**	**5,700 E**
11096-82-5	**Aroclor 1260**	**100**	**1,500**
11104-28-2	Aroclor 1221	100	< 100 U
11141-16-5	Aroclor 1232	100	< 100 U
37324-23-5	Aroclor 1262	100	< 100 U
11100-14-4	Aroclor 1268	100	< 100 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	NR
Tetrachlorometaxylene	95.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3546
Page 1 of 1

Sample ID: SSP-SOLIDS-20140912
DILUTION

Lab Sample ID: ZA03A
LIMS ID: 14-18685
Matrix: Soil
Data Release Authorized:
Reported: 09/26/14

QC Report No: ZA03-Jorgensen Forge
Project: JFOS Sheet Pile

Date Sampled: 09/12/14
Date Received: 09/12/14

Date Extracted: 09/18/14
Date Analyzed: 09/24/14 08:55
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.01 g-dry-wt
Final Extract Volume: 2.50 mL
Dilution Factor: 50.0
Silica Gel: Yes

Percent Moisture: 0.6%

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	500	< 500 U
53469-21-9	Aroclor 1242	500	< 500 U
12672-29-6	**Aroclor 1248**	**500**	**4,400**
11097-69-1	**Aroclor 1254**	**500**	**7,000**
11096-82-5	**Aroclor 1260**	**500**	**1,900**
11104-28-2	Aroclor 1221	500	< 500 U
11141-16-5	Aroclor 1232	500	< 500 U
37324-23-5	Aroclor 1262	500	< 500 U
11100-14-4	Aroclor 1268	500	< 500 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	D
Tetrachlorometaxylene	D

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3546
Page 1 of 1

Sample ID: MB-091814
METHOD BLANK

Lab Sample ID: MB-091814
LIMS ID: 14-18685
Matrix: Soil
Data Release Authorized:
Reported: 09/26/14

QC Report No: ZA03-Jorgensen Forge
Project: JFOS Sheet Pile

Date Sampled: NA
Date Received: NA

Date Extracted: 09/18/14
Date Analyzed: 09/23/14 13:26
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 12.5 g
Final Extract Volume: 2.50 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	4.0	< 4.0 U
53469-21-9	Aroclor 1242	4.0	< 4.0 U
12672-29-6	Aroclor 1248	4.0	< 4.0 U
11097-69-1	Aroclor 1254	4.0	< 4.0 U
11096-82-5	Aroclor 1260	4.0	< 4.0 U
11104-28-2	Aroclor 1221	4.0	< 4.0 U
11141-16-5	Aroclor 1232	4.0	< 4.0 U
37324-23-5	Aroclor 1262	4.0	< 4.0 U
11100-14-4	Aroclor 1268	4.0	< 4.0 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	80.0%
Tetrachlorometaxylene	69.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Page 1 of 1

Sample ID: LCS-091814
LCS/LCSD

Lab Sample ID: LCS-091814
LIMS ID: 14-18685
Matrix: Soil
Data Release Authorized:
Reported: 09/26/14

QC Report No: ZA03-Jorgensen Forge
Project: JFOS Sheet Pile

Date Sampled: NA
Date Received: NA

Date Extracted LCS/LCSD: 09/18/14

Date Analyzed LCS: 09/23/14 13:46
LCSD: 09/23/14 14:06
Instrument/Analyst LCS: ECD5/JGR
LCSD: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount LCS: 12.5 g-dry-wt
LCSD: 12.5 g-dry-wt
Final Extract Volume LCS: 2.50 mL
LCSD: 2.50 mL
Dilution Factor LCS: 1.00
LCSD: 1.00
Silica Gel: Yes

Percent Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Aroclor 1016	72.8	101	72.1%	73.4	101	72.7%	0.8%
Aroclor 1260	78.6	101	77.8%	80.4	101	79.6%	2.3%

PCB Surrogate Recovery

	LCS	LCSD
Decachlorobiphenyl	74.8%	78.5%
Tetrachlorometaxylene	66.5%	65.8%

Results reported in µg/kg (ppb)
RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

SW8082/PCB SOIL/SOLID/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: ZA03-Jorgensen Forge
Project: JFOS Sheet Pile

Client ID	DCBP % REC	DCBP LCL-UCL	TCMX % REC	TCMX LCL-UCL	TOT OUT
MB-091814	80.0%	59-115	69.8%	58-112	0
LCS-091814	74.8%	59-115	66.5%	58-112	0
LCSD-091814	78.5%	59-115	65.8%	58-112	0
SSP-SOLIDS-20140912	NR	47-120	95.2%	53-116	0
SSP-SOLIDS-20140912 DL	D	47-120	D	53-116	0

Microwave (MARS) Control Limits PCBSMI
Prep Method: SW3546
Log Number Range: 14-18685 to 14-18685

4

PCB METHOD BLANK SUMMARY

BLANK NO.

ZA03MBS1

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN FORGE

ARI Job No.: ZA03

Project: JFOS SHEET PILE

Lab Sample ID: ZA03MBS1

Lab File ID: 0923A017

Date Extracted: 09/18/14

Matrix: SOLID

Date Analyzed: 09/23/14

Instrument ID: ECD5

Time Analyzed: 1326

GC Columns: ZB5/ZB35

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
01	ZA03LCSS1	ZA03LCSS1	09/23/14
02	ZA03LCSDS1	ZA03LCSDS1	09/23/14
03	SSF SOLIDS-20140912	ZA03A	09/23/14
04	SSP-SOLIDS-20140912	ZA03A	09/24/14

ALL RUNS ARE DUAL COLUMN

ZA03:00014

6F

8082 INITIAL CALIBRATION OF AROCLOR 1016/1260

Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03 Project: JFOS SHEET

GC Column: ZB5 Instrument ID: ECD5

Calibration Date: 09/05/14

SURROGATES

	RT WIN	LVL1	LVL2	LVL3	LVL4	LVL5	LVL6	MEAN	%RSD
TX	4.28- 4.48	1.2295	1.2484	1.2537	1.2320	1.1646	1.1619	1.2150	3.4
TB	12.68-12.88	1.4177	1.2664	1.1646	1.0723	0.9683	0.9566	1.1410	15.7

Aroclor-1016 Peak	RT WIN	LVL1 .02	LVL2 0.05	LVL3 0.1	LVL4 .25	LVL5 0.5	LVL6 1.0	MEAN	%RSD R^2
1	5.93- 6.13	0.0381	0.0370	0.0359	0.0340	0.0313	0.0307	0.0345	8.8
2	6.34- 6.54	0.1249	0.1191	0.1154	0.1094	0.1013	0.0996	0.1116	9.0
3	6.49- 6.69	0.0563	0.0530	0.0505	0.0472	0.0433	0.0420	0.0487	11.4
4	6.60- 6.80	0.0370	0.0367	0.0352	0.0333	0.0310	0.0304	0.0339	8.3

AROCLOR AVERAGE %RSD = 9.4

Aroclor-1260 Peak	RT WIN	LVL1 .02	LVL2 0.05	LVL3 0.1	LVL4 .25	LVL5 0.5	LVL6 1.0	MEAN	%RSD R^2
1	9.83-10.03	0.0562	0.0532	0.0510	0.0481	0.0436	0.0428	0.0491	10.8
2	10.14-10.34	0.0526	0.0504	0.0491	0.0466	0.0426	0.0419	0.0472	9.2
3	10.52-10.72	0.1412	0.1395	0.1245	0.1176	0.1073	0.1076	0.1230	12.1
4	10.92-11.12	0.0621	0.0602	0.0594	0.0572	0.0528	0.0525	0.0574	6.9
5	11.10-11.30	0.0399	0.0395	0.0389	0.0372	0.0340	0.0335	0.0372	7.6

AROCLOR AVERAGE %RSD = 9.3

6F

8082 INITIAL CALIBRATION OF AROCLOR 1016/1260

Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03 Project: JFOS SHEET

GC Column: ZB35 Instrument ID: ECD5

Calibration Date: 09/05/14

SURROGATES

	RT WIN	LVL1	LVL2	LVL3	LVL4	LVL5	LVL6	MEAN	%RSD
TCX	4.40- 4.60	1.3705	1.3176	1.3321	1.2953	1.2248	1.2017	1.2903	5.0
DCB	13.16-13.36	1.3230	1.2539	1.2538	1.1512	1.0505	1.0080	1.1734	10.7

Aroclor-1016 Peak	RT WIN	LVL1 .02	LVL2 0.05	LVL3 0.1	LVL4 .25	LVL5 0.5	LVL6 1.0	MEAN	%RSD R^2
1	6.15- 6.35	0.0605	0.0570	0.0551	0.0509	0.0462	0.0436	0.0522	12.5
2	6.78- 6.98	0.1241	0.1148	0.1121	0.1067	0.0985	0.0946	0.1085	10.0
3	7.16- 7.36	0.0303	0.0286	0.0287	0.0269	0.0257	0.0250	0.0275	7.3
4	7.27- 7.47	0.0364	0.0334	0.0326	0.0300	0.0279	0.0268	0.0312	11.6

AROCLOR AVERAGE %RSD = 10.4

Aroclor-1260 Peak	RT WIN	LVL1 .02	LVL2 0.05	LVL3 0.1	LVL4 .25	LVL5 0.5	LVL6 1.0	MEAN	%RSD R^2
1	10.22-10.42	0.0809	0.0757	0.0731	0.0688	0.0628	0.0601	0.0702	11.3
2	10.67-10.87	0.0852	0.0799	0.0786	0.0755	0.0693	0.0671	0.0759	9.0
3	10.94-11.14	0.1797	0.1666	0.1612	0.1542	0.1411	0.1359	0.1564	10.4
4	11.52-11.72	0.1173	0.1149	0.1111	0.1063	0.0977	0.0948	0.1070	8.6

AROCLOR AVERAGE %RSD = 9.8

6G

8082 INITIAL CALIBRATION OF SINGLE POINT PCBs

Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03 Project: JFOS SHEET

GC Column: ZB5 Instrument ID: ECD5

Calibration Date: 09/05/14

Aroclor-1221			
Peak	RT	RT WIN	Cal Factor
1	3.360	3.26- 3.46	0.00992
2	4.748	4.65- 4.85	0.01493
3	5.031	4.93- 5.13	0.03373

Aroclor-1232			
Peak	RT	RT WIN	Cal Factor
1	3.360	3.26- 3.46	0.00571
2	6.030	5.93- 6.13	0.01420
3	6.589	6.49- 6.69	0.01995
4	7.413	7.31- 7.51	0.02138

Aroclor-1242			
Peak	RT	RT WIN	Cal Factor
1	6.029	5.93- 6.13	0.02842
2	6.437	6.34- 6.54	0.09095
3	6.586	6.49- 6.69	0.03964
4	7.409	7.31- 7.51	0.04179

Aroclor-1248			
Peak	RT	RT WIN	Cal Factor
1	6.437	6.34- 6.54	0.05556
2	7.412	7.31- 7.51	0.05697
3	7.788	7.69- 7.89	0.04762
4	8.078	7.98- 8.18	0.04789

6G

8082 INITIAL CALIBRATION OF SINGLE POINT PCBs

Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03 Project: JFOS SHEET

GC Column: ZB5 Instrument ID: ECD5

Calibration Date: 09/05/14

Aroclor-1254			
Peak	RT	RT WIN	Cal Factor
1	8.158	8.06- 8.26	0.07055
2	8.530	8.43- 8.63	0.04658
3	8.666	8.57- 8.77	0.09387
4	9.020	8.92- 9.12	0.09918
5	9.700	9.60- 9.80	0.09613

Aroclor-1262			
Peak	RT	RT WIN	Cal Factor
1	10.246	10.15-10.35	0.05410
2	10.623	10.52-10.72	0.13060
3	11.023	10.92-11.12	0.04489
4	11.206	11.11-11.31	0.06011
5	11.877	11.78-11.98	0.05582

Aroclor-1268			
Peak	RT	RT WIN	Cal Factor
1	11.133	11.03-11.23	0.13651
2	11.205	11.11-11.31	0.13999
3	11.588	11.49-11.69	0.11859
4	12.376	12.28-12.48	0.36134

6G

8082 INITIAL CALIBRATION OF SINGLE POINT PCBs

Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03 Project: JFOS SHEET

GC Column: ZB35 Instrument ID: ECD5

Calibration Date: 09/05/14

Aroclor-1221			
Peak	RT	RT WIN	Cal Factor
1	3.780	3.68- 3.88	0.00893
2	5.184	5.08- 5.28	0.01683
3	5.433	5.33- 5.53	0.00897
4	5.546	5.45- 5.65	0.02821

Aroclor-1232			
Peak	RT	RT WIN	Cal Factor
1	3.781	3.68- 3.88	0.00523
2	5.547	5.45- 5.65	0.01954
3	6.246	6.15- 6.35	0.02343
4	6.877	6.78- 6.98	0.04372

Aroclor-1242			
Peak	RT	RT WIN	Cal Factor
1	6.245	6.14- 6.34	0.04208
2	6.878	6.78- 6.98	0.08637
3	7.259	7.16- 7.36	0.02288
4	8.308	8.21- 8.41	0.02862

Aroclor-1248			
Peak	RT	RT WIN	Cal Factor
1	6.875	6.78- 6.98	0.05212
2	7.777	7.68- 7.88	0.04054
3	8.308	8.21- 8.41	0.04208
4	8.652	8.55- 8.75	0.05353

6G

8082 INITIAL CALIBRATION OF SINGLE POINT PCBs

Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03 Project: JFOS SHEET

GC Column: ZB35 Instrument ID: ECD5

Calibration Date: 09/05/14

Aroclor-1254			
Peak	RT	RT WIN	Cal Factor
1	8.368	8.27- 8.47	0.03764
2	8.544	8.44- 8.64	0.04608
3	9.065	8.96- 9.16	0.03440
4	9.215	9.12- 9.32	0.07333
5	10.000	9.90-10.10	0.04116

Aroclor-1262			
Peak	RT	RT WIN	Cal Factor
1	10.403	10.30-10.50	0.04640
2	10.773	10.67-10.87	0.08841
3	11.048	10.95-11.15	0.18056
4	11.629	11.53-11.73	0.12030
5	12.366	12.27-12.47	0.06501

Aroclor-1268			
Peak	RT	RT WIN	Cal Factor
1	11.565	11.47-11.67	0.17656
2	11.632	11.53-11.73	0.17651
3	12.025	11.93-12.13	0.13963
4	12.847	12.75-12.95	0.39228

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03 Project: JFOS SHEET

GC Column: ZB5 Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed :09/23/14

Lab Standard ID: AR1242 Time Analyzed :1246

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1242-1	6.05	5.93	6.13	253.4	250.0	1.4
Aroclor-1242-2	6.45	6.34	6.54	255.1	250.0	2.0
Aroclor-1242-3	6.60	6.49	6.69	254.0	250.0	1.6
Aroclor-1242-4	7.43	7.31	7.51	259.9	250.0	4.0

AVERAGE %D = 2.2

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03 Project: JFOS SHEET

GC Column: ZB5 Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed :09/23/14

Lab Standard ID: AR1660 Time Analyzed :1306

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	6.03	5.93	6.13	261.5	250.0	4.6
Aroclor-1016-2	6.44	6.34	6.54	255.9	250.0	2.4
Aroclor-1016-3	6.59	6.49	6.69	258.0	250.0	3.2
Aroclor-1016-4	6.70	6.60	6.80	265.6	250.0	6.2

AVERAGE %D = 4.1

Date Analyzed :09/23/14

Lab Standard ID: AR1660 Time Analyzed :1306

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	9.93	9.83	10.03	236.4	250.0	-5.4
Aroclor-1260-2	10.25	10.14	10.34	243.9	250.0	-2.4
Aroclor-1260-3	10.62	10.52	10.72	234.3	250.0	-6.3
Aroclor-1260-4	11.02	10.92	11.12	251.9	250.0	0.8
Aroclor-1260-5	11.21	11.10	11.30	239.5	250.0	-4.2

AVERAGE %D = 3.8

FORM VII PCB

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03 Project: JFOS SHEET

GC Column: ZB5 Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed :09/23/14

Lab Standard ID: AR1254 Time Analyzed :1626

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1254-1	8.16	8.06	8.26	236.2	250.0	-5.5
Aroclor-1254-2	8.53	8.43	8.63	243.4	250.0	-2.6
Aroclor-1254-3	8.67	8.57	8.77	246.5	250.0	-1.4
Aroclor-1254-4	9.02	8.92	9.12	246.5	250.0	-1.4
Aroclor-1254-5	9.70	9.60	9.80	244.4	250.0	-2.2

AVERAGE %D = 2.6

FORM VII PCB

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03 Project: JFOS SHEET

GC Column: ZB5 Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed :09/23/14

Lab Standard ID: AR1660 Time Analyzed :1646

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	6.03	5.93	6.13	256.7	250.0	2.7
Aroclor-1016-2	6.44	6.34	6.54	258.5	250.0	3.4
Aroclor-1016-3	6.59	6.49	6.69	256.3	250.0	2.5
Aroclor-1016-4	6.70	6.60	6.80	264.3	250.0	5.7

AVERAGE %D = 3.6

Date Analyzed :09/23/14

Lab Standard ID: AR1660 Time Analyzed :1646

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	9.93	9.83	10.03	238.7	250.0	-4.5
Aroclor-1260-2	10.24	10.14	10.34	245.5	250.0	-1.8
Aroclor-1260-3	10.62	10.52	10.72	239.1	250.0	-4.4
Aroclor-1260-4	11.02	10.92	11.12	256.8	250.0	2.7
Aroclor-1260-5	11.20	11.10	11.30	234.3	250.0	-6.3

AVERAGE %D = 3.9

FORM VII PCB

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03 Project: JFOS SHEET

GC Column: ZB5 Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed :09/23/14

Lab Standard ID: AR1248 Time Analyzed :2009

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1248-1	6.43	6.34	6.54	251.0	250.0	0.4
Aroclor-1248-2	7.41	7.31	7.51	247.4	250.0	-1.0
Aroclor-1248-3	7.79	7.69	7.89	248.7	250.0	-0.5
Aroclor-1248-4	8.08	7.98	8.18	256.2	250.0	2.5

AVERAGE %D = 1.1

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03 Project: JFOS SHEET

GC Column: ZB5 Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed :09/23/14

Lab Standard ID: AR1660 Time Analyzed :2029

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	6.03	5.93	6.13	258.7	250.0	3.5
Aroclor-1016-2	6.44	6.34	6.54	258.8	250.0	3.5
Aroclor-1016-3	6.59	6.49	6.69	257.9	250.0	3.2
Aroclor-1016-4	6.70	6.60	6.80	265.3	250.0	6.1

AVERAGE %D = 4.1

Date Analyzed :09/23/14

Lab Standard ID: AR1660 Time Analyzed :2029

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	9.93	9.83	10.03	252.4	250.0	1.0
Aroclor-1260-2	10.24	10.14	10.34	258.5	250.0	3.4
Aroclor-1260-3	10.62	10.52	10.72	249.2	250.0	-0.3
Aroclor-1260-4	11.02	10.92	11.12	269.7	250.0	7.9
Aroclor-1260-5	11.20	11.10	11.30	246.9	250.0	-1.2

AVERAGE %D = 2.8

FORM VII PCB

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03 Project: JFOS SHEET

GC Column: ZB5 Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed :09/23/14

Lab Standard ID: AR1242 Time Analyzed :2353

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1242-1	6.03	5.93	6.13	249.1	250.0	-0.4
Aroclor-1242-2	6.44	6.34	6.54	252.4	250.0	1.0
Aroclor-1242-3	6.59	6.49	6.69	249.8	250.0	-0.1
Aroclor-1242-4	7.41	7.31	7.51	246.3	250.0	-1.5

AVERAGE %D = 0.8

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03 Project: JFOS SHEET

GC Column: ZB5 Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed :09/24/14

Lab Standard ID: AR1660 Time Analyzed :0014

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	6.03	5.93	6.13	259.4	250.0	3.8
Aroclor-1016-2	6.44	6.34	6.54	259.2	250.0	3.7
Aroclor-1016-3	6.59	6.49	6.69	256.0	250.0	2.4
Aroclor-1016-4	6.70	6.60	6.80	266.4	250.0	6.5

AVERAGE %D = 4.1

Date Analyzed :09/24/14

Lab Standard ID: AR1660 Time Analyzed :0014

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	9.93	9.83	10.03	248.9	250.0	-0.4
Aroclor-1260-2	10.24	10.14	10.34	255.6	250.0	2.2
Aroclor-1260-3	10.62	10.52	10.72	246.8	250.0	-1.3
Aroclor-1260-4	11.02	10.92	11.12	268.1	250.0	7.2
Aroclor-1260-5	11.20	11.10	11.30	244.7	250.0	-2.1

AVERAGE %D = 2.6

FORM VII PCB

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03 Project: JFOS SHEET

GC Column: ZB35 Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed :09/23/14

Lab Standard ID: AR1242 Time Analyzed :1246

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1242-1	6.24	6.14	6.34	249.8	250.0	-0.1
Aroclor-1242-2	6.87	6.78	6.98	234.6	250.0	-6.1
Aroclor-1242-3	7.26	7.16	7.36	255.6	250.0	2.2
Aroclor-1242-4	8.31	8.21	8.41	253.3	250.0	1.3

AVERAGE %D = 2.4

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03 Project: JFOS SHEET

GC Column: ZB35 Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed :09/23/14

Lab Standard ID: AR1660 Time Analyzed :1306

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	6.24	6.15	6.35	259.0	250.0	3.6
Aroclor-1016-2	6.88	6.78	6.98	228.1	250.0	-8.7
Aroclor-1016-3	7.26	7.16	7.36	270.0	250.0	8.0
Aroclor-1016-4	7.37	7.27	7.47	262.5	250.0	5.0

AVERAGE %D = 6.3

Date Analyzed :09/23/14

Lab Standard ID: AR1660 Time Analyzed :1306

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	10.32	10.22	10.42	241.0	250.0	-3.6
Aroclor-1260-2	10.77	10.67	10.87	248.5	250.0	-0.6
Aroclor-1260-3	11.05	10.94	11.14	256.3	250.0	2.5
Aroclor-1260-4	11.62	11.52	11.72	250.5	250.0	0.2

AVERAGE %D = 1.7

FORM VII PCB

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03 Project: JFOS SHEET

GC Column: ZB35 Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed :09/23/14

Lab Standard ID: AR1254 Time Analyzed :1626

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1254-1	8.37	8.27	8.47	248.4	250.0	-0.6
Aroclor-1254-2	8.54	8.44	8.64	240.9	250.0	-3.6
Aroclor-1254-3	9.06	8.96	9.16	244.1	250.0	-2.4
Aroclor-1254-4	9.21	9.12	9.32	227.2	250.0	-9.1
Aroclor-1254-5	10.00	9.90	10.10	235.8	250.0	-5.7

AVERAGE %D = 4.3

FORM VII PCB

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03 Project: JFOS SHEET

GC Column: ZB35 Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed :09/23/14

Lab Standard ID: AR1660 Time Analyzed :1646

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	6.24	6.15	6.35	259.7	250.0	3.9
Aroclor-1016-2	6.88	6.78	6.98	228.3	250.0	-8.7
Aroclor-1016-3	7.26	7.16	7.36	270.7	250.0	8.3
Aroclor-1016-4	7.37	7.27	7.47	261.2	250.0	4.5

AVERAGE %D = 6.3

Date Analyzed :09/23/14

Lab Standard ID: AR1660 Time Analyzed :1646

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	10.32	10.22	10.42	259.1	250.0	3.6
Aroclor-1260-2	10.77	10.67	10.87	265.2	250.0	6.1
Aroclor-1260-3	11.04	10.94	11.14	258.3	250.0	3.3
Aroclor-1260-4	11.62	11.52	11.72	255.3	250.0	2.1

AVERAGE %D = 3.8

FORM VII PCB

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03 Project: JFOS SHEET

GC Column: ZB35 Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed :09/23/14

Lab Standard ID: AR1248 Time Analyzed :2009

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1248-1	6.87	6.78	6.98	236.8	250.0	-5.3
Aroclor-1248-2	7.78	7.68	7.88	244.0	250.0	-2.4
Aroclor-1248-3	8.31	8.21	8.41	243.1	250.0	-2.7
Aroclor-1248-4	8.65	8.55	8.75	245.5	250.0	-1.8

AVERAGE %D = 3.0

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03 Project: JFOS SHEET

GC Column: ZB35 Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed :09/23/14

Lab Standard ID: AR1660 Time Analyzed :2029

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	6.24	6.15	6.35	259.1	250.0	3.6
Aroclor-1016-2	6.88	6.78	6.98	226.0	250.0	-9.6
Aroclor-1016-3	7.26	7.16	7.36	270.9	250.0	8.4
Aroclor-1016-4	7.37	7.27	7.47	260.8	250.0	4.3

AVERAGE %D = 6.5

Date Analyzed :09/23/14

Lab Standard ID: AR1660 Time Analyzed :2029

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	10.32	10.22	10.42	265.4	250.0	6.2
Aroclor-1260-2	10.77	10.67	10.87	270.6	250.0	8.2
Aroclor-1260-3	11.04	10.94	11.14	262.0	250.0	4.8
Aroclor-1260-4	11.62	11.52	11.72	258.7	250.0	3.5

AVERAGE %D = 5.7

FORM VII PCB

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03 Project: JFOS SHEET

GC Column: ZB35 Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed :09/23/14

Lab Standard ID: AR1242 Time Analyzed :2353

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1242-1	6.24	6.14	6.34	248.4	250.0	-0.6
Aroclor-1242-2	6.88	6.78	6.98	228.2	250.0	-8.7
Aroclor-1242-3	7.26	7.16	7.36	251.9	250.0	0.8
Aroclor-1242-4	8.31	8.21	8.41	246.8	250.0	-1.3

AVERAGE %D = 2.8

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03 Project: JFOS SHEET

GC Column: ZB35 Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed :09/24/14

Lab Standard ID: AR1660 Time Analyzed :0014

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	6.24	6.15	6.35	259.5	250.0	3.8
Aroclor-1016-2	6.88	6.78	6.98	225.3	250.0	-9.9
Aroclor-1016-3	7.26	7.16	7.36	270.1	250.0	8.0
Aroclor-1016-4	7.37	7.27	7.47	260.3	250.0	4.1

AVERAGE %D = 6.4

Date Analyzed :09/24/14

Lab Standard ID: AR1660 Time Analyzed :0014

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	10.32	10.22	10.42	258.5	250.0	3.4
Aroclor-1260-2	10.77	10.67	10.87	267.1	250.0	6.8
Aroclor-1260-3	11.04	10.94	11.14	259.1	250.0	3.6
Aroclor-1260-4	11.62	11.52	11.72	257.5	250.0	3.0

AVERAGE %D = 4.2

FORM VII PCB

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03 Project: JFOS SHEET

GC Column: ZB5 Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed :09/24/14

Lab Standard ID: AR1254 Time Analyzed :0654

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1254-1	8.16	8.06	8.26	243.1	250.0	-2.7
Aroclor-1254-2	8.53	8.43	8.63	257.8	250.0	3.1
Aroclor-1254-3	8.67	8.57	8.77	258.4	250.0	3.4
Aroclor-1254-4	9.02	8.92	9.12	261.0	250.0	4.4
Aroclor-1254-5	9.70	9.60	9.80	257.3	250.0	2.9

AVERAGE %D = 3.3

FORM VII PCB

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03 Project: JFOS SHEET

GC Column: ZB5 Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed :09/24/14

Lab Standard ID: AR1660 Time Analyzed :0714

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	6.03	5.93	6.13	262.1	250.0	4.8
Aroclor-1016-2	6.44	6.34	6.54	261.7	250.0	4.7
Aroclor-1016-3	6.59	6.49	6.69	259.2	250.0	3.7
Aroclor-1016-4	6.70	6.60	6.80	272.2	250.0	8.9

AVERAGE %D = 5.5

Date Analyzed :09/24/14

Lab Standard ID: AR1660 Time Analyzed :0714

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	9.93	9.83	10.03	248.6	250.0	-0.5
Aroclor-1260-2	10.24	10.14	10.34	257.2	250.0	2.9
Aroclor-1260-3	10.62	10.52	10.72	247.7	250.0	-0.9
Aroclor-1260-4	11.01	10.92	11.12	270.4	250.0	8.2
Aroclor-1260-5	11.20	11.10	11.30	250.8	250.0	0.3

AVERAGE %D = 2.6

FORM VII PCB

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03 Project: JFOS SHEET

GC Column: ZB5 Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed :09/24/14

Lab Standard ID: AR1248 Time Analyzed :0930

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1248-1	6.44	6.34	6.54	257.4	250.0	3.0
Aroclor-1248-2	7.42	7.31	7.51	260.3	250.0	4.1
Aroclor-1248-3	7.79	7.69	7.89	269.6	250.0	7.8
Aroclor-1248-4	8.08	7.98	8.18	280.3	250.0	12.1

AVERAGE %D = 6.8

7F
PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03 Project: JFOS SHEET

GC Column: ZB5 Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed :09/24/14

Lab Standard ID: AR1660 Time Analyzed :0950

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	6.03	5.93	6.13	262.4	250.0	5.0
Aroclor-1016-2	6.44	6.34	6.54	260.8	250.0	4.3
Aroclor-1016-3	6.59	6.49	6.69	258.4	250.0	3.4
Aroclor-1016-4	6.70	6.60	6.80	269.9	250.0	8.0

AVERAGE %D = 5.2

Date Analyzed :09/24/14

Lab Standard ID: AR1660 Time Analyzed :0950

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	9.93	9.83	10.03	245.5	250.0	-1.8
Aroclor-1260-2	10.24	10.14	10.34	253.0	250.0	1.2
Aroclor-1260-3	10.62	10.52	10.72	243.5	250.0	-2.6
Aroclor-1260-4	11.02	10.92	11.12	266.4	250.0	6.6
Aroclor-1260-5	11.20	11.10	11.30	248.7	250.0	-0.5

AVERAGE %D = 2.5

FORM VII PCB

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03 Project: JFOS SHEET

GC Column: ZB35 Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed :09/24/14

Lab Standard ID: AR1254 Time Analyzed :0654

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1254-1	8.37	8.27	8.47	261.8	250.0	4.7
Aroclor-1254-2	8.54	8.44	8.64	258.8	250.0	3.5
Aroclor-1254-3	9.06	8.96	9.16	263.9	250.0	5.5
Aroclor-1254-4	9.21	9.12	9.32	237.0	250.0	-5.2
Aroclor-1254-5	10.00	9.90	10.10	262.7	250.0	5.1

AVERAGE %D = 4.8

FORM VII PCB

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03 Project: JFOS SHEET

GC Column: ZB35 Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed :09/24/14

Lab Standard ID: AR1660 Time Analyzed :0714

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	6.24	6.15	6.35	256.4	250.0	2.6
Aroclor-1016-2	6.88	6.78	6.98	222.6	250.0	-11.0
Aroclor-1016-3	7.26	7.16	7.36	270.3	250.0	8.1
Aroclor-1016-4	7.37	7.27	7.47	260.5	250.0	4.2

AVERAGE %D = 6.5

Date Analyzed :09/24/14

Lab Standard ID: AR1660 Time Analyzed :0714

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	10.32	10.22	10.42	249.6	250.0	-0.1
Aroclor-1260-2	10.77	10.67	10.87	260.2	250.0	4.1
Aroclor-1260-3	11.04	10.94	11.14	253.8	250.0	1.5
Aroclor-1260-4	11.62	11.52	11.72	253.7	250.0	1.5

AVERAGE %D = 1.8

FORM VII PCB

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03 Project: JFOS SHEET

GC Column: ZB35 Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed :09/24/14

Lab Standard ID: AR1248 Time Analyzed :0930

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1248-1	6.87	6.78	6.98	233.0	250.0	-6.8
Aroclor-1248-2	7.77	7.68	7.88	253.9	250.0	1.6
Aroclor-1248-3	8.31	8.21	8.41	257.9	250.0	3.2
Aroclor-1248-4	8.65	8.55	8.75	261.1	250.0	4.4

AVERAGE %D = 4.0

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03 Project: JFOS SHEET

GC Column: ZB35 Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed :09/24/14

Lab Standard ID: AR1660 Time Analyzed :0950

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	6.24	6.15	6.35	254.3	250.0	1.7
Aroclor-1016-2	6.88	6.78	6.98	220.5	250.0	-11.8
Aroclor-1016-3	7.26	7.16	7.36	268.5	250.0	7.4
Aroclor-1016-4	7.37	7.27	7.47	258.1	250.0	3.2

AVERAGE %D = 6.0

Date Analyzed :09/24/14

Lab Standard ID: AR1660 Time Analyzed :0950

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	10.32	10.22	10.42	246.0	250.0	-1.6
Aroclor-1260-2	10.77	10.67	10.87	256.2	250.0	2.5
Aroclor-1260-3	11.04	10.94	11.14	249.5	250.0	-0.2
Aroclor-1260-4	11.62	11.52	11.72	252.8	250.0	1.1

AVERAGE %D = 1.4

FORM VII PCB

FORM 8

PCB INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03 Project: JFOS SHEET

GC Column: ZB5 ID: 0.53(mm) Instrument ID: ECD5

Init. Calib. Date: 09/05/14

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

		IS1 AREA	RT	IS2 AREA	RT
	ICAL MIDPT	68336604	2.232	106364042	13.146
	UPPER LIMIT	136673208	2.332	212728084	13.246
	LOWER LIMIT	34168302	2.132	53182021	13.046

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME	IS1 AREA	RT	IS2 AREA	RT
01	ZZZZZ	ZZZZZ	09/05/14	1719	66968707	2.234	106386762	13.147
02		0.25PPMAR166	09/05/14	1739	68336604	2.232	106364042	13.146
03		0.02PPMAR166	09/05/14	1759	71298607	2.233	109521759	13.147
04		0.05PPMAR166	09/05/14	1819	68896112	2.232	107072369	13.147
05		1PPMAR1660	09/05/14	1840	63047420	2.234	99437101	13.146
06		0.1PPMAR1660	09/05/14	1900	71157892	2.233	110619087	13.147
07		0.5PPMAR1660	09/05/14	1920	69395213	2.234	109684434	13.146
08		AR1242	09/05/14	1941	63503858	2.234	102504510	13.148
09		AR1248	09/05/14	2001	67079622	2.235	107128851	13.148
10		AR1254	09/05/14	2021	67244466	2.234	107315197	13.148
11		AR2162	09/05/14	2042	65778557	2.235	104677392	13.148
12		AR3268	09/05/14	2102	68340586	2.234	105047729	13.148
13	ZZZZZ	ZZZZZ	09/05/14	2122	68199300	2.235	107345555	13.149
14	ZZZZZ	ZZZZZ	09/05/14	2142	65164230	2.235	105169847	13.149
15	ZZZZZ	ZZZZZ	09/05/14	2202	66791388	2.235	106490697	13.150
16	ZZZZZ	ZZZZZ	09/05/14	2223	68094644	2.236	108548317	13.150
17	ZZZZZ	ZZZZZ	09/05/14	2243	67384552	2.235	106975185	13.150
18	ZZZZZ	ZZZZZ	09/05/14	2303	66686755	2.235	107257203	13.149
19		AR1242	09/23/14	1246	69733732	2.243	119634322	13.157
20		AR1660	09/23/14	1306	71757601	2.235	118004784	13.148
21	ZA03MBS1	ZA03MBS1	09/23/14	1326	70855185	2.231	123599535	13.136
22	ZA03LCSS1	ZA03LCSS1	09/23/14	1346	72037997	2.229	118292317	13.136
23	ZA03LCSDS1	ZA03LCSDS1	09/23/14	1406	74902211	2.232	121353431	13.136
24		AR1254	09/23/14	1626	75561069	2.229	121276940	13.142
25		AR1660	09/23/14	1646	71913919	2.232	112800197	13.142
26		AR1248	09/23/14	2009	75068743	2.231	112136936	13.143
27		AR1660	09/23/14	2029	74335495	2.231	110268394	13.141
28	SSP-SOLIDS-2	ZA03A	09/23/14	2151	71591056	2.231	120883320	13.132
29		AR1242	09/23/14	2353	75079466	2.232	120026433	13.142
30		AR1660	09/24/14	0014	75469511	2.232	115871460	13.141
31		AR1254	09/24/14	0654	80808108	2.232	129972592	13.141
32		AR1660	09/24/14	0714	77209306	2.231	123730015	13.139

IS1 = 1-Bromo-2-Nitrobenzene RT Window = RT +/- 0.1 min

IS2 = Hexabromobiphenyl

* Indicates value outside QC Limits

FORM VIII PCB

FORM 8

PCB INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03 Project: JFOS SHEET

GC Column: ZB5 ID: 0.53(mm) Instrument ID: ECD5

Init. Calib. Date: 09/05/14

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

					IS1 AREA	RT	IS2 AREA	RT
				ICAL MIDPT	68336604	2.232	106364042	13.146
				UPPER LIMIT	136673208	2.332	212728084	13.246
				LOWER LIMIT	34168302	2.132	53182021	13.046
	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME	IS1 AREA	RT	IS2 AREA	RT
33	SSP-SOLIDS-2	ZA03A	09/24/14	0855	75370994	2.230	136242995	13.134
34		AR1248	09/24/14	0930	79458479	2.237	136160501	13.145
35		AR1660	09/24/14	0950	77626902	2.232	127285314	13.140

IS1 = 1-Bromo-2-Nitrobenzene RT Window = RT +/- 0.1 min

IS2 = Hexabromobiphenyl

* Indicates value outside QC Limits

FORM VIII PCB

FORM 8
PCB INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03 Project: JFOS SHEET

GC Column: ZB35 ID: 0.53(mm) Instrument ID: ECD5

Init. Calib. Date: 09/05/14

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

		IS1 AREA	RT	IS2 AREA	RT
	ICAL MIDPT	23298669	2.807	16910731	14.126
	UPPER LIMIT	46597338	2.907	33821462	14.226
	LOWER LIMIT	11649334	2.707	8455366	14.026

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME	IS1 AREA	RT	IS2 AREA	RT
01	ZZZZZ	ZZZZZ	09/05/14	1719	22870418	2.807	16780827	14.125
02		0.25PPMAR166	09/05/14	1739	23298669	2.807	16910731	14.126
03		0.02PPMAR166	09/05/14	1759	24102664	2.806	17533630	14.127
04		0.05PPMAR166	09/05/14	1819	23739112	2.806	17134507	14.127
05		1PPMAR1660	09/05/14	1840	22003780	2.806	16275263	14.126
06		0.1PPMAR1660	09/05/14	1900	24315657	2.806	17710454	14.127
07		0.5PPMAR1660	09/05/14	1920	23976757	2.805	17588689	14.127
08		AR1242	09/05/14	1941	22146455	2.806	16457379	14.127
09		AR1248	09/05/14	2001	23420943	2.807	17303257	14.128
10		AR1254	09/05/14	2021	23460395	2.807	17424705	14.128
11		AR2162	09/05/14	2042	22873448	2.807	16845329	14.127
12		AR3268	09/05/14	2102	23636735	2.807	17491564	14.128
13	ZZZZZ	ZZZZZ	09/05/14	2122	23692769	2.809	17513904	14.127
14	ZZZZZ	ZZZZZ	09/05/14	2142	23185763	2.807	16896047	14.128
15	ZZZZZ	ZZZZZ	09/05/14	2202	23209426	2.807	17104199	14.129
16	ZZZZZ	ZZZZZ	09/05/14	2223	23652946	2.808	17514371	14.129
17	ZZZZZ	ZZZZZ	09/05/14	2243	23184128	2.808	17369539	14.127
18	ZZZZZ	ZZZZZ	09/05/14	2303	22960795	2.807	17355053	14.128
19		AR1242	09/23/14	1246	25150294	2.797	19390170	14.128
20		AR1660	09/23/14	1306	25097012	2.807	19053079	14.127
21	ZA03MBS1	ZA03MBS1	09/23/14	1326	23986850	2.806	20007504	14.122
22	ZA03LCSS1	ZA03LCSS1	09/23/14	1346	24673620	2.805	20163785	14.122
23	ZA03LCSDS1	ZA03LCSDS1	09/23/14	1406	25022589	2.806	20295297	14.122
24		AR1254	09/23/14	1626	25960136	2.804	16511629	14.125
25		AR1660	09/23/14	1646	24784438	2.805	16879673	14.125
26		AR1248	09/23/14	2009	25502456	2.804	15914656	14.124
27		AR1660	09/23/14	2029	25177538	2.805	16458383	14.124
28	SSP-SOLIDS-2	ZA03A	09/23/14	2151	23718820	2.805	17635359	14.119
29		AR1242	09/23/14	2353	25943676	2.805	17005905	14.123
30		AR1660	09/24/14	0014	25522386	2.806	17380740	14.124
31		AR1254	09/24/14	0654	27154162	2.805	19861458	14.124
32		AR1660	09/24/14	0714	26146769	2.803	18866553	14.123

IS1 = 1-Bromo-2-Nitrobenzene RT Window = RT +/- 0.1 min

IS2 = Hexabromobiphenyl

* Indicates value outside QC Limits

FORM VIII PCB

FORM 8

PCB INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03 Project: JFOS SHEET

GC Column: ZB35 ID: 0.53(mm) Instrument ID: ECD5

Init. Calib. Date: 09/05/14

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

					IS1 AREA	RT	IS2 AREA	RT
				ICAL MIDPT	23298669	2.807	16910731	14.126
				UPPER LIMIT	46597338	2.907	33821462	14.226
				LOWER LIMIT	11649334	2.707	8455366	14.026
	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME	IS1 AREA	RT	IS2 AREA	RT
33	SSP-SOLIDS-2	ZA03A	09/24/14	0855	23972994	2.805	19504901	14.121
34		AR1248	09/24/14	0930	27676170	2.801	20348810	14.125
35		AR1660	09/24/14	0950	26580967	2.806	19550217	14.125

IS1 = 1-Bromo-2-Nitrobenzene RT Window = RT +/- 0.1 min

IS2 = Hexabromobiphenyl

* Indicates value outside QC Limits

FORM VIII PCB

Analytical Resources, Inc. Report No. ZA04, dated Sept. 26, 2014

Analytical Resources, Incorporated
Analytical Chemists and Consultants

25 September 2014

Miles Dyer
Jorgensen Forge Corporation
8531 East Marginal Way South
Seattle, WA 98108

RE: JFOS Sheet Pile
ARI Job No.: ZA04

Dear Miles:

Please find enclosed the original Chain-of-Custody (COC) record, sample receipt documentation, and the final data for the sample from the project referenced above. Analytical Resources, Inc. (ARI) accepted one wipe sample on September 12, 2014. For further details regarding sample receipt please refer to the enclosed Cooler Receipt Form. The sample was analyzed for PCBs as requested.

There were no anomalies associated with the analysis of this sample.

An electronic copy of this report and all supporting raw data will remain on file with ARI. Should you have any questions regarding these results, please feel free to contact me at your convenience.

Respectfully,

ANALYTICAL RESOURCES, INC.

Mark D. Harris
Project Manager
206/695-6210
markh@arilabs.com
www.arilabs.com

cc: Dee Gardner, Sound Earth, Inc.
eFile ZA04

Enclosures

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 7A04	Turn-around Requested: STANDARD	Page: 1 of 1	
ARI Client Company: JORGENSEN FORGE	Phone: 206.762.1100	Date: 09.12.2014	Ice Present? Y
Client Contact: MILES DYER		No. of Coolers: 1	Cooler Temps: 15.1
Client Project Name: JFOS SHEET PILE			
Client Project #:	Samplers: DMG		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No Containers	Analysis Requested: PCBs by EPA 8082	Notes/Comments
SSP-C-20140912	09.12.14	1455	WIPE	1	X	

Comments/Special Instructions
- CC: DEE GARDNER AT dgardner@soundearthinc.com
- LEVEL III
- 9 AROCLORS

Relinquished by	Received by	Relinquished by	Received by
(Signature) DMG	(Signature)	(Signature)	(Signature)
Printed Name: DEE GARDNER	Printed Name: A. Volgardsen	Printed Name	Printed Name:
Company: SOUNDEARTH	Company: ARI	Company:	Company:
Date & Time: 09.12.2014 @ 1540	Date & Time: 9/12/14 1540	Date & Time	Date & Time:

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Jorgensen Forge | Project Name: JFCS Sheet Pile

COC No(s): (NA) | Delivered by: Fed-Ex UPS Courier (Hand Delivered) Other:

Assigned ARI Job No: YZA04 | Tracking No: (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry): 15.1

Time: 1540

If cooler temperature is out of compliance fill out form 00070F | Temp Gun ID#: 90877952

Cooler Accepted by: AV | Date: 9/12/14 | Time: 1540

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used?	(Bubble Wrap) (Wet Ice) Gel Packs Baggies Foam Block Paper Other:		
Was sufficient ice used (if appropriate)?	(NA)	YES	(NO) ✓
Were all bottles sealed in individual plastic bags?		YES	(NO)
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...	(NA)	YES	NO
Were all VOC vials free of air bubbles?	(NA)	YES	NO
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI	(NA)		

Was Sample Split by ARI: (NA) YES Date/Time: Equipment: Split by:

Samples Logged by: AV | Date: 9/12/14 | Time: 1650

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:

Small Air Bubbles ~ 2mm	Peabubbles 2-4 mm	LARGE Air Bubbles > 4 mm
• • •	• • •	● ● ●

Small → "sm"	(< 2 mm)
Peabubbles → "pb"	(2 to < 4 mm)
Large → "lg"	(4 to < 6 mm)
Headspace → "hs"	(> 6 mm)

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: ZA04
Client: Jorgensen Forge
Project Event: N/A
Project Name: JFOS Sheet Pile

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	SSP-C-20140912	ZA04A	14-18684	Wipe	09/12/14 14:55	09/12/14 15:40

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 12/31/13

Inorganic Data

U	Indicates that the target analyte was not detected at the reported concentration
*	Duplicate RPD is not within established control limits
B	Reported value is less than the CRDL but ≥ the Reporting Limit
N	Matrix Spike recovery not within established control limits
NA	Not Applicable, analyte not spiked
H	The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
L	Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U	Indicates that the target analyte was not detected at the reported concentration
*	Flagged value is not within established control limits
B	Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.
J	Estimated concentration when the value is less than ARI's established reporting limits
D	The spiked compound was not detected due to sample extract dilution
E	Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

Q Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).

S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte

NA The flagged analyte was not analyzed for

NR Spiked compound recovery is not reported due to chromatographic interference

NS The flagged analyte was not spiked into the sample

M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

EMPC Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**

C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column

P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

X Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**

Z Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**

Geotechnical Data

A — The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.

F — Samples were frozen prior to particle size determination

SM — Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations

SS — Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis

W — Weight of sample in some pipette aliquots was below the level required for accurate weighting

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3580A
Page 1 of 1

Sample ID: SSP-C-20140912
SAMPLE

Lab Sample ID: ZA04A
LIMS ID: 14-18684
Matrix: Wipe
Data Release Authorized:
Reported: 09/24/14

QC Report No: ZA04-Jorgensen Forge
Project: JFOS Sheet Pile

Date Sampled: 09/12/14
Date Received: 09/12/14

Date Extracted: 09/17/14
Date Analyzed: 09/20/14 04:46
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: No
Acid Cleanup: Yes

Sample Amount: 1.00 Wipe
Final Extract Volume: 10 mL
Dilution Factor: 1.00
Silica Gel: Yes

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	1.0	< 1.0 U
53469-21-9	Aroclor 1242	1.0	< 1.0 U
12672-29-6	Aroclor 1248	2.0	< 2.0 Y
11097-69-1	**Aroclor 1254**	**1.0**	**38 E**
11096-82-5	**Aroclor 1260**	**1.0**	**19 E**
11104-28-2	Aroclor 1221	1.0	< 1.0 U
11141-16-5	Aroclor 1232	1.0	< 1.0 U
37324-23-5	Aroclor 1262	1.0	< 1.0 U
11100-14-4	Aroclor 1268	1.0	< 1.0 U

Reported in Total µg

PCB Surrogate Recovery

Decachlorobiphenyl	93.8%
Tetrachlorometaxylene	70.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3580A
Page 1 of 1

Sample ID: SSP-C-20140912
DILUTION

Lab Sample ID: ZA04A
LIMS ID: 14-18684
Matrix: Wipe
Data Release Authorized:
Reported: 09/24/14

QC Report No: ZA04-Jorgensen Forge
Project: JFOS Sheet Pile

Date Sampled: 09/12/14
Date Received: 09/12/14

Date Extracted: 09/17/14
Date Analyzed: 09/22/14 13:34
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: No
Acid Cleanup: Yes

Sample Amount: 1.00 Wipe
Final Extract Volume: 10 mL
Dilution Factor: 5.00
Silica Gel: Yes

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	5.0	< 5.0 U
53469-21-9	Aroclor 1242	5.0	< 5.0 U
12672-29-6	Aroclor 1248	5.0	< 5.0 U
11097-69-1	**Aroclor 1254**	**5.0**	**41**
11096-82-5	**Aroclor 1260**	**5.0**	**20**
11104-28-2	Aroclor 1221	5.0	< 5.0 U
11141-16-5	Aroclor 1232	5.0	< 5.0 U
37324-23-5	Aroclor 1262	5.0	< 5.0 U
11100-14-4	Aroclor 1268	5.0	< 5.0 U

Reported in Total µg

PCB Surrogate Recovery

Decachlorobiphenyl	125%
Tetrachlorometaxylene	73.1%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3580A
Page 1 of 1

Sample ID: MB-091714
METHOD BLANK

Lab Sample ID: MB-091714
LIMS ID: 14-18684
Matrix: Wipe
Data Release Authorized:
Reported: 09/24/14

QC Report No: ZA04-Jorgensen Forge
Project: JFOS Sheet Pile

Date Sampled: NA
Date Received: NA

Date Extracted: 09/17/14
Date Analyzed: 09/20/14 04:03
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes

Sample Amount: 1.00 Wipe
Final Extract Volume: 10 mL
Dilution Factor: 1.00
Silica Gel: No

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	1.0	< 1.0 U
53469-21-9	Aroclor 1242	1.0	< 1.0 U
12672-29-6	Aroclor 1248	1.0	< 1.0 U
11097-69-1	Aroclor 1254	1.0	< 1.0 U
11096-82-5	Aroclor 1260	1.0	< 1.0 U
11104-28-2	Aroclor 1221	1.0	< 1.0 U
11141-16-5	Aroclor 1232	1.0	< 1.0 U
37324-23-5	Aroclor 1262	1.0	< 1.0 U
11100-14-4	Aroclor 1268	1.0	< 1.0 U

Reported in Total µg

PCB Surrogate Recovery

Decachlorobiphenyl	82.5%
Tetrachlorometaxylene	67.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Page 1 of 1

Sample ID: LCS-091714
LAB CONTROL

Lab Sample ID: LCS-091714
LIMS ID: 14-18684
Matrix: Wipe
Data Release Authorized:
Reported: 09/24/14

QC Report No: ZA04-Jorgensen Forge
Project: JFOS Sheet Pile

Date Sampled: 09/12/14
Date Received: 09/12/14

Date Extracted: 09/17/14
Date Analyzed: 09/20/14 04:24
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes

Sample Amount: 1.00 Wipe
Final Extract Volume: 10 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: NA

Analyte	Lab Control	Spike Added	Recovery
Aroclor 1016	3.94	5.00	78.8%
Aroclor 1260	4.64	5.00	92.8%

PCB Surrogate Recovery

Decachlorobiphenyl	85.2%
Tetrachlorometaxylene	73.5%

Reported in Total µg

ANALYTICAL RESOURCES INCORPORATED

SW8082/PCB SURROGATE RECOVERY SUMMARY

Matrix: Wipe

QC Report No: ZA04-Jorgensen Forge
Project: JFOS Sheet Pile

Client ID	DCBP	TCMX	TOT OUT
MB-091714	82.5%	67.2%	0
LCS-091714	85.2%	73.5%	0
SSP-C-20140912	93.8%	70.8%	0
SSP-C-20140912 DL	125%	73.1%	0

	LCS/MB LIMITS	QC LIMITS
(DCBP) = Decachlorobiphenyl	(30-160)	(30-160)
(TCMX) = Tetrachlorometaxylene	(30-160)	(30-160)

Prep Method: SW3580A
Log Number Range: 14-18684 to 14-18684

4

PCB METHOD BLANK SUMMARY

BLANK NO.

ZA04MB1

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN FORGE

ARI Job No.: ZA04

Project: JFOS SHEET PILE

Lab Sample ID: ZA04MB1

Lab File ID: 0919A043

Date Extracted: 09/17/14

Matrix: SOLID

Date Analyzed: 09/20/14

Instrument ID: ECD7

Time Analyzed: 0403

GC Columns: ZB5/ZB35

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
01	ZA04LCS1	ZA04LCS1	09/20/14
02	SSP-C-20140912	ZA04A	09/20/14
03	SSP-C-20140912	ZA04A	09/22/14

ALL RUNS ARE DUAL COLUMN

6F

8082 INITIAL CALIBRATION OF AROCLOR 1016/1260

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: ZA04 Project: JFOS SHEET

GC Column: ZB5 Instrument ID: ECD7

Calibration Date: 07/21/14

SURROGATES

	RT WIN	LVL1	LVL2	LVL3	LVL4	LVL5	LVL6	MEAN	%RSD
X	5.54- 5.74	0.7845	0.7534	0.7572	0.7562	0.7662	0.7814	0.7665	1.8
B	14.43-14.63	1.3847	1.2110	1.1615	1.0771	1.0606	1.0558	1.1584	11.0

Aroclor-1016 Peak	RT WIN	LVL1 .02	LVL2 0.05	LVL3 0.1	LVL4 .25	LVL5 0.5	LVL6 1.0	MEAN	%RSD R^2
1	7.54- 7.74	0.0223	0.0208	0.0207	0.0191	0.0182	0.0176	0.0198	9.0
2	8.07- 8.27	0.0659	0.0646	0.0641	0.0610	0.0595	0.0590	0.0623	4.6
3	8.25- 8.45	0.0279	0.0275	0.0272	0.0258	0.0248	0.0242	0.0262	6.0
4	8.68- 8.88	0.0138	0.0136	0.0134	0.0124	0.0115	0.0110	0.0126	9.3

AROCLOR AVERAGE %RSD = 7.2

Aroclor-1260 Peak	RT WIN	LVL1 .02	LVL2 0.05	LVL3 0.1	LVL4 .25	LVL5 0.5	LVL6 1.0	MEAN	%RSD R^2
1	11.86-12.06	0.0500	0.0483	0.0483	0.0424	0.0425	0.0413	0.0455	8.4
2	12.18-12.38	0.0463	0.0454	0.0458	0.0407	0.0411	0.0403	0.0432	6.6
3	12.55-12.75	0.1222	0.1211	0.1241	0.1146	0.1186	0.1191	0.1200	2.8
4	12.95-13.15	0.0589	0.0584	0.0596	0.0545	0.0558	0.0556	0.0571	3.7
5	13.13-13.33	0.0377	0.0375	0.0380	0.0349	0.0356	0.0354	0.0365	3.7

AROCLOR AVERAGE %RSD = 5.0

FORM VI PCB-1

6F

8082 INITIAL CALIBRATION OF AROCLOR 1016/1260

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: ZA04 Project: JFOS SHEET

GC Column: ZB35 Instrument ID: ECD7

Calibration Date: 07/21/14

SURROGATES

	RT WIN	LVL1	LVL2	LVL3	LVL4	LVL5	LVL6	MEAN	%RSD
TCX	5.13- 5.33	1.2192	1.0817	1.0669	1.0070	0.9783	0.9559	1.0515	9.1
DCB	14.43-14.63	1.3661	1.2314	1.1539	1.0208	0.9832	0.9553	1.1184	14.4

Aroclor-1016 Peak	RT WIN	LVL1 .02	LVL2 0.05	LVL3 0.1	LVL4 .25	LVL5 0.5	LVL6 1.0	MEAN	%RSD R^2
1	7.27- 7.47	0.0527	0.0481	0.0455	0.0408	0.0377	0.0349	0.0433	15.5
2	8.08- 8.28	0.1060	0.0978	0.0936	0.0846	0.0805	0.0765	0.0898	12.5
3	8.56- 8.76	0.0277	0.0265	0.0252	0.0224	0.0214	0.0201	0.0239	12.7
4	8.69- 8.89	0.0328	0.0297	0.0279	0.0244	0.0228	0.0212	0.0265	16.7

AROCLOR AVERAGE %RSD = 14.4

Aroclor-1260 Peak	RT WIN	LVL1 .02	LVL2 0.05	LVL3 0.1	LVL4 .25	LVL5 0.5	LVL6 1.0	MEAN	%RSD R^2
1	11.72-11.92	0.0988	0.0908	0.0865	0.0740	0.0722	0.0686	0.0818	14.6
2	12.26-12.46	0.0957	0.0867	0.0839	0.0716	0.0698	0.0661	0.0790	14.6
3	12.54-12.74	0.1858	0.1704	0.1689	0.1485	0.1474	0.1420	0.1605	10.7
4	13.10-13.30	0.1309	0.1214	0.1167	0.1012	0.0989	0.0941	0.1105	13.2

AROCLOR AVERAGE %RSD = 13.3

FORM VI PCB-1

6G

8082 INITIAL CALIBRATION OF SINGLE POINT PCBs

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: ZA04 Project: JFOS SHEET

GC Column: ZB5 Instrument ID: ECD7

Calibration Date: 07/21/14

Aroclor-1221			
Peak	RT	RT WIN	Cal Factor
1	6.091	5.99- 6.19	0.00772
2	6.298	6.20- 6.40	0.00684
3	6.422	6.32- 6.52	0.02014

Aroclor-1232			
Peak	RT	RT WIN	Cal Factor
1	7.640	7.54- 7.74	0.00792
2	8.165	8.06- 8.26	0.02446
3	8.353	8.25- 8.45	0.01050
4	8.489	8.39- 8.59	0.00763

Aroclor-1242			
Peak	RT	RT WIN	Cal Factor
1	7.641	7.54- 7.74	0.01529
2	8.165	8.06- 8.26	0.04818
3	8.353	8.25- 8.45	0.02047
4	9.326	9.23- 9.43	0.01988

Aroclor-1248			
Peak	RT	RT WIN	Cal Factor
1	8.154	8.05- 8.25	0.03055
2	8.778	8.68- 8.88	0.01755
3	9.321	9.22- 9.42	0.03044
4	9.797	9.70- 9.90	0.03767

6G

8082 INITIAL CALIBRATION OF SINGLE POINT PCBs

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: ZA04 Project: JFOS SHEET

GC Column: ZB5 Instrument ID: ECD7

Calibration Date: 07/21/14

Aroclor-1254			
Peak	RT	RT WIN	Cal Factor
1	10.143	10.04-10.24	0.03598
2	10.533	10.43-10.63	0.02488
3	10.675	10.57-10.77	0.04837
4	11.037	10.94-11.14	0.05159
5	11.733	11.63-11.83	0.05112

Aroclor-1262			
Peak	RT	RT WIN	Cal Factor
1	11.963	11.86-12.06	0.06338
2	12.280	12.18-12.38	0.04986
3	12.652	12.55-12.75	0.13623
4	13.049	12.95-13.15	0.04413
5	13.162	13.06-13.26	0.05810

Aroclor-1268			
Peak	RT	RT WIN	Cal Factor
1	13.162	13.06-13.26	0.16503
2	13.231	13.13-13.33	0.16508
3	13.595	13.49-13.69	0.14388
4	14.225	14.12-14.32	0.44705

6G

8082 INITIAL CALIBRATION OF SINGLE POINT PCBs

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: ZA04 Project: JFOS SHEET

GC Column: ZB35 Instrument ID: ECD7

Calibration Date: 07/21/14

Aroclor-1221			
Peak	RT	RT WIN	Cal Factor
1	6.065	5.97- 6.17	0.01356
2	6.361	6.26- 6.46	0.00778
3	6.495	6.39- 6.59	0.02335
4	7.386	7.29- 7.49	0.00770

Aroclor-1232			
Peak	RT	RT WIN	Cal Factor
1	6.494	6.39- 6.59	0.01645
2	7.372	7.27- 7.47	0.01890
3	8.189	8.09- 8.29	0.03588
4	8.798	8.70- 8.90	0.01174

Aroclor-1242			
Peak	RT	RT WIN	Cal Factor
1	6.489	6.39- 6.59	0.01564
2	7.366	7.27- 7.47	0.03278
3	8.182	8.08- 8.28	0.06800
4	9.263	9.16- 9.36	0.02490

Aroclor-1248			
Peak	RT	RT WIN	Cal Factor
1	7.356	7.26- 7.46	0.01614
2	8.170	8.07- 8.27	0.04422
3	8.859	8.76- 8.96	0.02396
4	10.206	10.11-10.31	0.04565

6G

8082 INITIAL CALIBRATION OF SINGLE POINT PCBs

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: ZA04 Project: JFOS SHEET

GC Column: ZB35 Instrument ID: ECD7

Calibration Date: 07/21/14

Aroclor-1254			
Peak	RT	RT WIN	Cal Factor
1	9.910	9.81-10.01	0.03100
2	10.100	10.00-10.20	0.03897
3	10.795	10.70-10.90	0.06467
4	11.055	10.96-11.16	0.06573
5	11.821	11.72-11.92	0.04902

Aroclor-1262			
Peak	RT	RT WIN	Cal Factor
1	12.370	12.27-12.47	0.08614
2	12.643	12.54-12.74	0.17319
3	13.152	13.05-13.25	0.07678
4	13.211	13.11-13.31	0.11751
5	13.853	13.75-13.95	0.06071

Aroclor-1268			
Peak	RT	RT WIN	Cal Factor
1	13.152	13.05-13.25	0.18571
2	13.215	13.12-13.32	0.17538
3	13.569	13.47-13.67	0.14298
4	14.234	14.13-14.33	0.39624

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: ZA04 Project: JFOS SHEET

GC Column: ZB5 Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/20/14

Lab Standard ID: AR1242 Time Analyzed :0108

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1242-1	7.64	7.54	7.74	255.9	250.0	2.4
Aroclor-1242-2	8.16	8.06	8.26	241.7	250.0	-3.3
Aroclor-1242-3	8.35	8.25	8.45	239.3	250.0	-4.3
Aroclor-1242-4	9.33	9.23	9.43	241.3	250.0	-3.5

AVERAGE %D = 3.4

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: ZA04 Project: JFOS SHEET

GC Column: ZB5 Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/20/14

Lab Standard ID: AR1660 Time Analyzed :0130

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	7.64	7.54	7.74	263.3	250.0	5.3
Aroclor-1016-2	8.16	8.07	8.27	239.8	250.0	-4.1
Aroclor-1016-3	8.35	8.25	8.45	242.1	250.0	-3.1
Aroclor-1016-4	8.78	8.68	8.88	245.9	250.0	-1.6

AVERAGE %D = 3.5

Date Analyzed :09/20/14

Lab Standard ID: AR1660 Time Analyzed :0130

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	11.96	11.86	12.06	263.9	250.0	5.6
Aroclor-1260-2	12.28	12.18	12.38	255.7	250.0	2.3
Aroclor-1260-3	12.65	12.55	12.75	268.4	250.0	7.4
Aroclor-1260-4	13.05	12.95	13.15	254.7	250.0	1.9
Aroclor-1260-5	13.23	13.13	13.33	243.9	250.0	-2.4

AVERAGE %D = 3.9

FORM VII PCB

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: ZA04 Project: JFOS SHEET

GC Column: ZB5 Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/20/14

Lab Standard ID: AR1248 Time Analyzed :0508

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1248-1	8.16	8.05	8.25	249.9	250.0	-0.0
Aroclor-1248-2	8.78	8.68	8.88	246.9	250.0	-1.2
Aroclor-1248-3	9.33	9.22	9.42	246.2	250.0	-1.5
Aroclor-1248-4	9.80	9.70	9.90	249.0	250.0	-0.4

AVERAGE %D = 0.8

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: ZA04 Project: JFOS SHEET

GC Column: ZB5 Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/20/14

Lab Standard ID: AR1660 Time Analyzed :0530

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	7.64	7.54	7.74	265.8	250.0	6.3
Aroclor-1016-2	8.16	8.07	8.27	241.1	250.0	-3.6
Aroclor-1016-3	8.35	8.25	8.45	244.9	250.0	-2.0
Aroclor-1016-4	8.78	8.68	8.88	248.8	250.0	-0.5

AVERAGE %D = 3.1

Date Analyzed :09/20/14

Lab Standard ID: AR1660 Time Analyzed :0530

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	11.96	11.86	12.06	267.8	250.0	7.1
Aroclor-1260-2	12.28	12.18	12.38	260.0	250.0	4.0
Aroclor-1260-3	12.65	12.55	12.75	272.6	250.0	9.0
Aroclor-1260-4	13.05	12.95	13.15	260.4	250.0	4.2
Aroclor-1260-5	13.23	13.13	13.33	249.7	250.0	-0.1

AVERAGE %D = 4.9

FORM VII PCB

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: ZA04 Project: JFOS SHEET

GC Column: ZB35 Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/20/14

Lab Standard ID: AR1242 Time Analyzed :0108

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1242-1	6.49	6.39	6.59	293.4	250.0	17.3
Aroclor-1242-2	7.37	7.27	7.47	295.7	250.0	18.3
Aroclor-1242-3	8.18	8.08	8.28	285.4	250.0	14.2
Aroclor-1242-4	9.26	9.16	9.36	284.0	250.0	13.6

AVERAGE %D = 15.8

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: ZA04 Project: JFOS SHEET

GC Column: ZB35 Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/20/14

Lab Standard ID: AR1660 Time Analyzed :0130

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	7.36	7.27	7.47	293.0	250.0	17.2
Aroclor-1016-2	8.18	8.08	8.28	273.7	250.0	9.5
Aroclor-1016-3	8.65	8.56	8.76	283.3	250.0	13.3
Aroclor 1016-4	8.79	8.69	8.89	278.3	250.0	11.3

AVERAGE %D = 12.8

Date Analyzed :09/20/14

Lab Standard ID: AR1660 Time Analyzed :0130

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	11.82	11.72	11.92	224.2	250.0	-10.3
Aroclor-1260-2	12.36	12.26	12.46	230.3	250.0	-7.9
Aroclor-1260-3	12.64	12.54	12.74	234.7	250.0	-6.1
Aroclor-1260-4	13.20	13.10	13.30	220.5	250.0	-11.8

AVERAGE %D = 9.0

FORM VII PCB

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: ZA04 Project: JFOS SHEET

GC Column: ZB35 Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/20/14

Lab Standard ID: AR1248 Time Analyzed :0508

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1248-1	7.36	7.26	7.46	302.6	250.0	21.0
Aroclor-1248-2	8.18	8.07	8.27	295.6	250.0	18.2
Aroclor-1248-3	8.86	8.76	8.96	279.2	250.0	11.7
Aroclor-1248-4	10.21	10.11	10.31	305.9	250.0	22.4

AVERAGE %D = 18.3

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: ZA04 Project: JFOS SHEET

GC Column: ZB35 Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/20/14

Lab Standard ID: AR1660 Time Analyzed :0530

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	7.36	7.27	7.47	291.0	250.0	16.4
Aroclor-1016-2	8.18	8.08	8.28	271.9	250.0	8.8
Aroclor-1016-3	8.65	8.56	8.76	282.7	250.0	13.1
Aroclor-1016-4	8.79	8.69	8.89	278.2	250.0	11.3

AVERAGE %D = 12.4

Date Analyzed :09/20/14

Lab Standard ID: AR1660 Time Analyzed :0530

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	11.82	11.72	11.92	224.0	250.0	-10.4
Aroclor-1260-2	12.36	12.26	12.46	230.0	250.0	-8.0
Aroclor-1260-3	12.64	12.54	12.74	235.7	250.0	-5.7
Aroclor-1260-4	13.20	13.10	13.30	221.1	250.0	-11.5

AVERAGE %D = 8.9

FORM VII PCB

FORM 8
PCB INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: ZA04 Project: JFOS SHEET

GC Column: ZB5 ID: 0.53(mm) Instrument ID: ECD7

Init. Calib. Date: 07/21/14

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

		IS1 AREA	RT	IS2 AREA	RT
	ICAL MIDPT	4434421	2.698	4077244	14.794
	UPPER LIMIT	8868842	2.798	8154488	14.894
	LOWER LIMIT	2217210	2.598	2038622	14.694

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME	IS1 AREA	RT	IS2 AREA	RT
01	ZZZZZ	ZZZZZ	07/21/14	1626	4373805	2.692	3760196	14.794
02		0.25PPMAR166	07/21/14	1648	4434421	2.698	4077244	14.794
03		0.02PPMAR166	07/21/14	1710	4447124	2.695	3891807	14.794
04		0.05PPMAR166	07/21/14	1732	4441352	2.694	3882218	14.795
05		1PPMAR1660	07/21/14	1754	4414652	2.693	3889578	14.795
06		0.1PPMAR1660	07/21/14	1816	4521857	2.697	3895919	14.795
07		0.5PPMAR1660	07/21/14	1837	4493869	2.693	3945031	14.795
08		AR1242	07/21/14	1859	4438700	2.692	3879215	14.795
09		AR1248	07/21/14	1921	4414839	2.697	3887155	14.795
10		AR1254	07/21/14	1943	4508938	2.695	3960286	14.795
11		AR2162	07/21/14	2005	4494447	2.696	3952241	14.795
12		AR3268	07/21/14	2027	4552734	2.702	4020488	14.795
13	ZZZZZ	ZZZZZ	07/21/14	2049	4445508	2.694	3936762	14.795
14	ZZZZZ	ZZZZZ	07/21/14	2111	4558602	2.696	4045633	14.795
15	ZZZZZ	ZZZZZ	07/21/14	2133	4461342	2.697	4016945	14.795
16	ZZZZZ	ZZZZZ	07/21/14	2154	4529995	2.696	4048326	14.794
17	ZZZZZ	ZZZZZ	07/21/14	2216	4527689	2.697	4039776	14.794
18	ZZZZZ	ZZZZZ	07/21/14	2238	4512425	2.694	4015293	14.794
19		AR1242	09/20/14	0108	5417163	2.703	4160853	14.794
20		AR1660	09/20/14	0130	4679826	2.700	4027634	14.794
21	ZA04MB1	ZA04MB1	09/20/14	0403	5460167	2.701	4556347	14.793
22	ZA04LCS1	ZA04LCS1	09/20/14	0424	5284139	2.702	4416606	14.794
23	SSP-C-201409	ZA04A	09/20/14	0446	5460204	2.703	4583791	14.793
24		AR1248	09/20/14	0508	5158208	2.704	4516663	14.793
25		AR1660	09/20/14	0530	4694209	2.701	4060251	14.794

IS1 = 1-Bromo-2-Nitrobenzene RT Window = RT +/- 0.1 min
IS2 = Hexabromobiphenyl

* Indicates value outside QC Limits

FORM VIII PCB

FORM 8
PCB INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: ZA04 Project: JFOS SHEET

GC Column: ZB35 ID: 0.53(mm) Instrument ID: ECD7

Init. Calib. Date: 07/21/14

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

		IS1 AREA	RT	IS2 AREA	RT
	ICAL MIDPT	11221020	3.068	7927142	15.138
	UPPER LIMIT	22442040	3.168	15854284	15.238
	LOWER LIMIT	5610510	2.968	3963571	15.038

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME	IS1 AREA	RT	IS2 AREA	RT
01	ZZZZZ	ZZZZZ	07/21/14	1626	11004730	3.063	7358659	15.138
02		0.25PPMAR166	07/21/14	1648	11221020	3.068	7927142	15.138
03		0.02PPMAR166	07/21/14	1710	11165593	3.066	7592758	15.138
04		0.05PPMAR166	07/21/14	1732	11143504	3.065	7552963	15.139
05		1PPMAR1660	07/21/14	1754	11066585	3.065	7627214	15.138
06		0.1PPMAR1660	07/21/14	1816	11325344	3.067	7687777	15.138
07		0.5PPMAR1660	07/21/14	1837	11352435	3.063	7765451	15.138
08		AR1242	07/21/14	1859	11252651	3.063	7692669	15.138
09		AR1248	07/21/14	1921	11180919	3.066	7655141	15.138
10		AR1254	07/21/14	1943	11293843	3.066	7784494	15.138
11		AR2162	07/21/14	2005	11029310	3.067	7767574	15.137
12		AR3268	07/21/14	2027	11362773	3.070	7876862	15.138
13	ZZZZZ	ZZZZZ	07/21/14	2049	11184271	3.065	7717457	15.139
14	ZZZZZ	ZZZZZ	07/21/14	2111	11369418	3.066	7903232	15.138
15	ZZZZZ	ZZZZZ	07/21/14	2133	11175868	3.067	7850594	15.137
16	ZZZZZ	ZZZZZ	07/21/14	2154	11269109	3.066	7889154	15.137
17	ZZZZZ	ZZZZZ	07/21/14	2216	11177181	3.066	7868041	15.138
18	ZZZZZ	ZZZZZ	07/21/14	2238	11096232	3.064	7812050	15.137
19		AR1242	09/20/14	0108	9231366	3.066	7023173	15.132
20		AR1660	09/20/14	0130	7770669	3.065	6609828	15.132
21	ZA04MB1	ZA04MB1	09/20/14	0403	11876283	3.064	7765174	15.131
22	ZA04LCS1	ZA04LCS1	09/20/14	0424	11298415	3.065	7522486	15.132
23	SSP-C-201409	ZA04A	09/20/14	0446	11803674	3.065	9930475	15.132
24		AR1248	09/20/14	0508	8863276	3.067	7646947	15.132
25		AR1660	09/20/14	0530	7902677	3.065	6867926	15.132

IS1 = 1-Bromo-2-Nitrobenzene RT Window = RT +/- 0.1 min
IS2 = Hexabromobiphenyl

* Indicates value outside QC Limits

FORM VIII PCB

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: ZA04 Project: JFOS SHEET

GC Column: ZB5 Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/22/14

Lab Standard ID: AR1248 Time Analyzed :1228

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1248-1	8.15	8.05	8.25	254.1	250.0	1.6
Aroclor-1248-2	8.78	8.68	8.88	251.0	250.0	0.4
Aroclor-1248-3	9.32	9.22	9.42	249.4	250.0	-0.2
Aroclor-1248-4	9.80	9.70	9.90	251.5	250.0	0.6

AVERAGE %D = 0.7

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: ZA04 Project: JFOS SHEET

GC Column: ZB5 Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/22/14

Lab Standard ID: AR1660 Time Analyzed :1250

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	7.64	7.54	7.74	268.7	250.0	7.5
Aroclor-1016-2	8.16	8.07	8.27	244.8	250.0	-2.1
Aroclor-1016-3	8.35	8.25	8.45	248.3	250.0	-0.7
Aroclor-1016-4	8.78	8.68	8.88	252.5	250.0	1.0

AVERAGE %D = 2.8

Date Analyzed :09/22/14

Lab Standard ID: AR1660 Time Analyzed :1250

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	11.96	11.86	12.06	303.5	250.0	21.4
Aroclor-1260-2	12.28	12.18	12.38	289.8	250.0	15.9
Aroclor-1260-3	12.65	12.55	12.75	302.4	250.0	20.9
Aroclor-1260-4	13.05	12.95	13.15	285.6	250.0	14.2
Aroclor-1260-5	13.23	13.13	13.33	272.4	250.0	9.0

AVERAGE %D = 16.3

FORM VII PCB

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: ZA04 Project: JFOS SHEET

GC Column: ZB5 Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/22/14

Lab Standard ID: AR1254 Time Analyzed :1356

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1254-1	10.14	10.04	10.24	275.9	250.0	10.3
Aroclor-1254-2	10.53	10.43	10.63	228.5	250.0	-8.6
Aroclor-1254-3	10.67	10.57	10.77	269.2	250.0	7.7
Aroclor-1254-4	11.04	10.94	11.14	271.9	250.0	8.8
Aroclor-1254-5	11.73	11.63	11.83	262.7	250.0	5.1

AVERAGE %D = 8.1

FORM VII PCB

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: ZA04 Project: JFOS SHEET

GC Column: ZB5 Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/22/14

Lab Standard ID: AR1660 Time Analyzed :1418

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	7.64	7.54	7.74	268.3	250.0	7.3
Aroclor-1016-2	8.17	8.07	8.27	243.8	250.0	-2.5
Aroclor-1016-3	8.35	8.25	8.45	247.1	250.0	-1.2
Aroclor-1016-4	8.78	8.68	8.88	252.5	250.0	1.0

AVERAGE %D = 3.0

Date Analyzed :09/22/14

Lab Standard ID: AR1660 Time Analyzed :1418

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	11.96	11.86	12.06	298.7	250.0	19.5
Aroclor-1260-2	12.28	12.18	12.38	285.1	250.0	14.0
Aroclor-1260-3	12.65	12.55	12.75	297.9	250.0	19.2
Aroclor-1260-4	13.05	12.95	13.15	281.9	250.0	12.8
Aroclor-1260-5	13.23	13.13	13.33	269.6	250.0	7.8

AVERAGE %D = 14.7

FORM VII PCB

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: ZA04 Project: JFOS SHEET

GC Column: ZB35 Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/22/14

Lab Standard ID: AR1248 Time Analyzed :1228

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1248-1	7.36	7.26	7.46	306.8	250.0	22.7
Aroclor-1248-2	8.17	8.07	8.27	303.3	250.0	21.3
Aroclor-1248-3	8.86	8.76	8.96	287.7	250.0	15.1
Aroclor-1248-4	10.21	10.11	10.31	301.7	250.0	20.7

AVERAGE %D = 19.9

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: ZA04 Project: JFOS SHEET

GC Column: ZB35 Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/22/14

Lab Standard ID: AR1660 Time Analyzed :1250

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	7.36	7.27	7.47	296.6	250.0	18.6
Aroclor-1016-2	8.18	8.08	8.28	279.4	250.0	11.8
Aroclor-1016-3	8.65	8.56	8.76	289.1	250.0	15.6
Aroclor-1016-4	8.79	8.69	8.89	283.8	250.0	13.5

AVERAGE %D = 14.9

Date Analyzed :09/22/14

Lab Standard ID: AR1660 Time Analyzed :1250

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	11.82	11.72	11.92	237.5	250.0	-5.0
Aroclor-1260-2	12.36	12.26	12.46	237.9	250.0	-4.8
Aroclor-1260-3	12.63	12.54	12.74	246.8	250.0	-1.3
Aroclor-1260-4	13.20	13.10	13.30	231.0	250.0	-7.6

AVERAGE %D = 4.7

FORM VII PCB

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: ZA04 Project: JFOS SHEET

GC Column: ZB35 Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/22/14

Lab Standard ID: AR1254 Time Analyzed :1356

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D	
Aroclor-1254-1	9.91	9.81	10.01	315.4	250.0	26.2	<-
Aroclor-1254-2	10.10	10.00	10.20	311.6	250.0	24.6	
Aroclor-1254-3	10.80	10.70	10.90	284.3	250.0	13.7	
Aroclor-1254-4	11.06	10.96	11.16	308.8	250.0	23.5	
Aroclor-1254-5	11.82	11.72	11.92	290.2	250.0	16.1	

AVERAGE %D = 20.8

FORM VII PCB

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: ZA04 Project: JFOS SHEET

GC Column: ZB35 Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/22/14

Lab Standard ID: AR1660 Time Analyzed :1418

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	7.37	7.27	7.47	294.7	250.0	17.9
Aroclor-1016-2	8.18	8.08	8.28	277.0	250.0	10.8
Aroclor-1016-3	8.66	8.56	8.76	286.9	250.0	14.8
Aroclor-1016-4	8.79	8.69	8.89	282.0	250.0	12.8

AVERAGE %D = 14.1

Date Analyzed :09/22/14

Lab Standard ID: AR1660 Time Analyzed :1418

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	11.82	11.72	11.92	249.4	250.0	-0.2
Aroclor-1260-2	12.36	12.26	12.46	250.6	250.0	0.2
Aroclor-1260-3	12.64	12.54	12.74	254.3	250.0	1.7
Aroclor-1260-4	13.20	13.10	13.30	237.6	250.0	-5.0

AVERAGE %D = 1.8

FORM VII PCB

FORM 8
PCB INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: ZA04 Project: JFOS SHEET

GC Column: ZB5 ID: 0.53(mm) Instrument ID: ECD7

Init. Calib. Date: 07/21/14

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

					IS1 AREA	RT	IS2 AREA	RT
				ICAL MIDPT	4600852	2.698	3289877	14.795
				UPPER LIMIT	9201704	2.798	6579754	14.895
				LOWER LIMIT	2300426	2.598	1644938	14.695
	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME	IS1 AREA	RT	IS2 AREA	RT
01		AR1248	09/22/14	1228	4600852	2.698	3289877	14.795
02		AR1660	09/22/14	1250	4083904	2.703	3054108	14.794
03	SSP-C-201409	ZA04A	09/22/14	1334	5102808	2.703	3823223	14.794
04		AR1254	09/22/14	1356	4570674	2.701	3500008	14.794
05		AR1660	09/22/14	1418	4116903	2.707	3239228	14.795

IS1 = 1-Bromo-2-Nitrobenzene RT Window = RT +/- 0.1 min
IS2 = Hexabromobiphenyl

* Indicates value outside QC Limits

FORM VIII PCB

FORM 8
PCB INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: ZA04 Project: JFOS SHEET

GC Column: ZB35 ID: 0.53(mm) Instrument ID: ECD7

Init. Calib. Date: 07/21/14

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

					IS1 AREA	RT	IS2 AREA	RT
				ICAL MIDPT	7773978	3.059	5890389	15.132
				UPPER LIMIT	15547956	3.159	11780778	15.232
				LOWER LIMIT	3886989	2.959	2945194	15.032
	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME	IS1 AREA	RT	IS2 AREA	RT
01		AR1248	09/22/14	1228	7773978	3.059	5890389	15.132
02		AR1660	09/22/14	1250	6817080	3.066	5117289	15.132
03	SSP-C-201409	ZA04A	09/22/14	1334	10607250	3.066	6539926	15.132
04		AR1254	09/22/14	1356	8290732	3.065	5797888	15.132
05		AR1660	09/22/14	1418	6966053	3.069	5353797	15.131

IS1 = 1-Bromo-2-Nitrobenzene RT Window = RT +/- 0.1 min
IS2 = Hexabromobiphenyl

* Indicates value outside QC Limits

FORM VIII PCB

APPENDIX C

DATA VALIDATION REPORT

Data Validation Report

Jorgensen Forge Outfall Site – Sheet Pile Residue
8531 East Marginal Way South
Seattle, Washington

Laboratory Project Number: YY33

Prepared for:

SoundEarth Strategies, Inc.
2811 Fairview Ave East, Suite 2000
Seattle, Washington 98102

Prepared by:

Pyron Environmental, Inc.
3530 32nd Way, NW
Olympia, WA 98502

Approved By: _____ Date: ***9/15/2014***
Mingta Lin, Senior Project Chemist

ACRONYMS

%	percent
%D	percent difference
$\%D_f$	percent drift
%R	percent recovery
%RSD	percent relative standard deviation
ARI	Analytical Resources, Inc.
CCV	continuing calibration verification
CF	calibration factor
CLP	U.S. EPA Contract Laboratory Program
COC	chain-of-custody
ECD	electron capture detector
EPA	U.S. Environmental Protection Agency
ICAL	initial calibration
ICV	initial calibration verification
LCS	laboratory control sample
MDL	method detection limit
NFGs	CLP National Functional Guidelines for Data Review (EPA 2008)
PCB	polychlorinated biphenyl
QA/QC	quality assurance/quality control
QAPP	quality assurance project plan
RF	response factor
RL	reporting limit
RPD	relative percent difference
SDG	sample delivery group

INTRODUCTION

This report presents and discusses findings of the data validation performed on analytical data for wipe samples collected during September 2014 for the referenced project. The laboratory report validated herein was submitted by Analytical Resources, Inc. (AR) in Tukwila, Washington.

A Stage 2B (as defined in EPA 2009) data validation was performed on these laboratory reports. The validation followed the procedures specified in USEPA CLP Functional Guidelines ([NFGs], EPA 2008), with modifications to accommodate project and analytical method requirements. The numerical quality assurance/quality control (QA/QC) criteria applied to the validation were in accordance with those specified in the quality assurance project plan ([QAPP], Floyd|Snider, 2010), as modified in the Basis of Design Report (SoundEarth, 2013) and the current performance-based control limits established by the laboratory (laboratory control limits). Instrument calibration, frequency of QC analyses, and analytical sequence requirements were evaluated against the respective analytical methods.

Validation findings are discussed in each section pertinent to the QC parameter for each type of analysis. Qualified data with applied data qualifiers are summarized in the **Summary** section at the end of this report. Samples and the associated analyses validated herein are summarized as follows:

Field Sample ID	Laboratory Sample ID	Sampling Date	Sample Type	Analysis
				PCB Aroclors
SSP-W-201 40829	YY33A	8/29/14	Wipe	X
SSP-S-201 40829	YY33B	8/29/14	Wipe	X
SSP-N-201 40829	YY33C	8/29/14	Wipe	X

Notes:
PCBs – Polychlorinated biphenyl
X – The analysis was requested and performed on the sample.

The analytical parameters requested for the samples, the respective analytical methods, and the analytical laboratories are summarized below:

Parameter	Analytical Method	Analytical Laboratory
PCB Aroclors	SW846 Method 8082A	Analytical Resources, Inc. (ARI) Tukwila, Washington

Note: SW846 - *USEPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods,* SW-846, Third Edition, December 1996.

DATA VALIDATION FINDINGS

1. PCB Aroclors (EPA Method SW8082A)

1.1 Sample Management and Holding Times

No anomalies were identified in relation to sample preservation, handling, and transport as discussed in Section 1.1.

Wipe samples should be extracted within 14 days of collection. Sample extracts should be analyzed within 40 days of extraction. All samples were extracted and analyzed within the required holding times.

1.2 Initial Calibration

The method requires that (1) a minimum of 5-point calibration be performed using the mixture of Aroclor 1016 and 1260, (2) a single-point calibration be performed for the other five Aroclors to establish calibration factors (CFs) and for Aroclor pattern recognition, (3) at least 3 peaks (preferably 5 peaks) must be chosen for each Aroclor for characterization, (4) the %RSD values of Aroclor 1016 and 1260 CFs must be ≤20%, and (5) if dual column analysis is chosen, both columns should meet the requirements. All ICALs met the requirements.

1.3 Calibration Verification

Calibration verifications were performed at the required frequency, at the beginning and end of analytical sequence within a 12-hour shift or 20 samples, whichever is more frequent. All %D values were within ±20%.

1.4 Blanks

Method Blank: Method blanks were prepared and analyzed as required. PCB Aroclors were not detected at or above the reporting limits (RLs) in the method blank.

1.5 Surrogate Spikes

Surrogate spikes were added to all samples as required by the method. All surrogate spike %R values were within the laboratory control limits.

1.6 Laboratory Control Sample (LCS)

LCS analyses were performed as required by the method. All %R values were within the laboratory control limits.

1.7 Method Reporting Limits

Sample-specific RLs were supported with adequate initial calibration concentrations. All three samples required dilution for the elevated levels of Aroclor 1254 and/or Aroclor 1260; the RLs were elevated accordingly. Aroclor 1254 nd Aroclor 1260 results for all samples were to be reported from the dilution analyses, where all other Aroclors reported from the initial analyses.

1.8 Overall Assessment of PCB Aroclors Data Usability

Note that Aroclor 1254 and Aroclor 1260 were present in all samples. Due to the possible overlapping congeners between Aroclor groups, the reported values for these Aroclors might have been over-estimated.

PCB Aroclor data are of known quality and acceptable for use, as qualified.

SUMMARY

Table I. Data Affected by QC Anomalies

Laboratory ID	Sample ID	Analyte	Qualifier	Qualified Reason	Report Section
YY33A YY33B YY33C	SSP-W-201 40829 SSP-S-201 40829 SSP-N-201 40829 (Initial Analysis)	Aroclor 1254 Aroclor 1260	**DNR**	Analyte concentration exceeded instrument calibration range; report from dilution analysis.	**1.7**
YY33A YY33B YY33C	SSP-W-201 40829 SSP-S-201 40829 SSP-N-201 40829 (Dilution Analysis)	Aroclor 1016 Aroclor 1221 Aroclor 1232 Aroclor 1242 Aroclor 1248 Aroclor 1262 Aroclor 1268	**DNR**	Report from initial analysis in favor of the lower detection limit.	**1.7**

Table II. Data Qualifier Definition

Data Qualifier	Definition
DNR	Do not report. The result was to be reported from an alternative analysis.

REFERENCES

USEPA *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use,* January 13 2009, EPA 540-R-08-005.

USEPA *Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review,* Office of Superfund Remediation and Technical Innovation, U.S. Environmental Protection Agency, June 2008, USEPA-540-R-08-01.

USEPA *Test Methods for Evaluating Solid Waste (SW-846). Third Edition and Revised Update IIIA.* Office of Solid Waste and Emergency Response, Washington, D.C. April 1998.

Jorgensen Forge Outfall Site Seattle, Washington Source Control Action 15-inch and 24-inch Pipes Cleanout Work Plan, Appendix B - Sampling and Analysis Plan/Quality Assurance Project Plan, Floyd|Snider, December 17, 2010. & Modification (SoundEarth Strategies, Inc., October 2013).